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Time of Pouring Large Ingots

Knowledge of Its Relation to Temperature a Basis
for Fundamental Improvement in Quality of
Steel—Time Study on Various Ingots

BY J. H. HRUSKA*

ALTHOUGH many of the specific effects of chemical composition and of the heat treatment of carbon and alloy steels are well known and although this knowledge is being usefully employed in the production of steel, the manufacture of sound ingots still remains a strict matter of experience, or rather a result of careful observations.

Thus, to produce a good large ingot according to the specific effects already known, two fundamental principles should be carried out. These are as follows: A well deoxidized quiet steel and a proper speed of pouring (in addition to a correct design of the ingot mold). The latter requirement—proper speed—includes the point usually considered as very important, the temperature during pouring. It is evident, however, that a regulation of temperature by the speed of pouring can be carried out only when the volume of molten metal delivered per time unit into the mold is sufficiently small, i. e., the nozzle must be so dimensioned as to compromise the mentioned requirement and the erosion as well as the corrosion by the poured metal. As a standard for the following observations the pouring ladles were equipped with $1\frac{1}{2}$ -in. nozzles.

Time of Pouring and Size of Ingots

In studying the time of pouring, the influence of differences in chemical composition, particularly the carbon contents, having no wider limits than the usual forging quality, i. e., 0.20 to 0.45 per cent carbon, was so small that it was altogether ignored unless special steel ingots were produced. The temperature of the molten metal, however, was very closely watched because of the noticeable effect upon the time of pouring. In the following paragraphs this important feature is designated as a conclusive result of careful time studies and observations.

By "time of pouring" is understood the number of minutes which elapse from the first metal in the mold

to the moment when the mold is filled to the sinkhead, which method is probably the only logical one.

The results of the many observations may be best compared from the diagram:

Curve 1 represents a summary of measurements made on ingots poured from heats generally referred to as "cold."

Curve 2 shows the time of pouring on "hot" steel.

Curve "A," however, represents the average time at which large ingots should be poured under the mentioned conditions in order to assure a satisfactory metal without cracks or blowholes near or on the surface.

All the observations described herewith refer to ingots which were found after cooling and during forging to be practically perfect.

Generally the points of the observed intervals do not fall exactly for a smooth curve to pass through all points. Smooth curves were constructed so as to represent a mean of all the points.

Ingots with weights up to about 20 tons are nearly all close to the line,

with only a few exceptions. All values tended to become more or less irregular when the ingot weight was greater than 20 tons. It also should be noticed that the general shape of the curves changes in values close to 18 to 20 tons, which was practically considered as the limit for bottom-poured ingots.

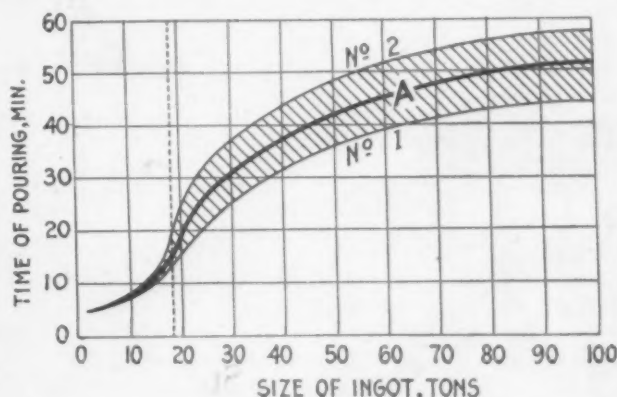
Time Studies on Various Ingots

In the following lines the author gives a few of his time studies made on typical big-end-up ingots of an octagonal cross-section:

Weight of Ingot, tons...	5	15	30	60	80
	Elec- tric	Basic O.-H.	Acid O.-H.	Basic O.-H.	Basic O.-H.
Melting furnace.....					
Furnace tapped.....	7:02	8:09	11:49	9:24	12:13
Pouring started.....	7:09	8:17	12:22	10:05	1:06
Mold filled up to sink- head	7:14	8:19	12:24	10:08	1:06
Sample of steel taken...	7:15	8:25	12:30	10:19	1:21
Pouring finished.....	7:19	8:33	12:41	10:21	1:21
Pouring time in min....	5	8	33	41	53

Conclusions

In the manufacture of large ingots the importance of a correct time of pouring should not be neglected. To a certain extent the proper pouring temperature, usually considered as the most effective point in the



Curve A Represents Average Time for the Pouring of Large Steel Ingots so as to Insure the Best Results

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production of a large ingot, can be conveniently regulated so that even a "hot" steel can be poured "colder" by means of giving a lower speed of pouring, or in other words, a longer time. The detection of the exact

relationship of both factors—time and pouring temperature—and its practical application in the making of ingot steel will probably be one of the fundamental improvements in the quality of forging steel.

New 600-Ton Central Furnace Stack

Better Steel Control and Economies in Manufacturing Cost Anticipated

THE Central Furnace Co. construction program at Massillon, Ohio, is the only instance this year of new blast furnace construction subsidiary to steel works operation. The Central Furnace Co. is a subsidiary of the Central Steel Co., which is adding to its control of raw materials for steel making. Having made a specialty of high-grade steel products, control of the quality of pig iron entering into its open-hearth steel has for some time been the aim of the management.

Besides definite advantages in control of steel manufacture, the company will realize considerable economy in manufacturing cost by the use of hot metal, by the utilization of the power from excess blast furnace gas and through the sale of slag. Completion of the program includes by-product coke ovens and extension

The bins are Hoover & Mason type, with new design of car and roller gates. The ore yard and bins will be served by Alliance bridge and car dumper. A double strand pig machine is provided, while slag disposal is by ladle.

Construction was started March 9, 1925, when excavation of the hillside for bins was begun, excavated material being used for fill in the ore yard. Work was started also on the main track leading from the steel plant yards to the site on the plateau. Concrete was started for bin foundations and retaining wall May 4 and completed Aug. 1. Excavation and concreting for furnace and stove foundations were finished the latter part of May and furnace and stove erection started June 16 and June 25, respectively.

To Oct. 15, 132,600 cu. yd. of excavation has been



Progress View Taken in August. The lower portion of the stack appears prominently, with two of the stoves behind it. In foreground will be the bins and stock house

of the power program. At this time the blast furnace plant only is under construction.

Adaptation was made of the topography of the site to construction. The furnace, stoves, gas cleaning and flue dust recovery system, boiler and power plant and pig casting machine are located on the plateau immediately at the edge of the hillside, overlooking the valley. The hillside is excavated for the bins and stock house, so that the bin tracks are level with the plant yard level, and the stock yard floor is 40 ft. below general plant yard level. This puts the car dumper and storage yard for ore and limestone down on the general track level of the existing steel plant.

The plant is to consist of one 600-ton furnace, with four hot blast stoves, gas cleaning system consisting of gas washer and heat interchanger, flue dust recovery system consisting of primary and secondary dust catcher, Dorr thickener, continuous filter and sintering plant, 5500-hp. boiler house with gas, powdered coal and coke braze firing, power house with turbo-blowers, 10,000 kw. of generating capacity, pumps for water circulation, water system consisting of deep well pumps, combined lime-Permutit water treating plant for furnace and condenser water and spray pond.

moved and used for backfill and grading and 19,000 cu. yd. of concrete placed. There have been employed an average of 165 men, 100 mules and horses and six shovels. Gravel, sand and cement are all brought in by truck.

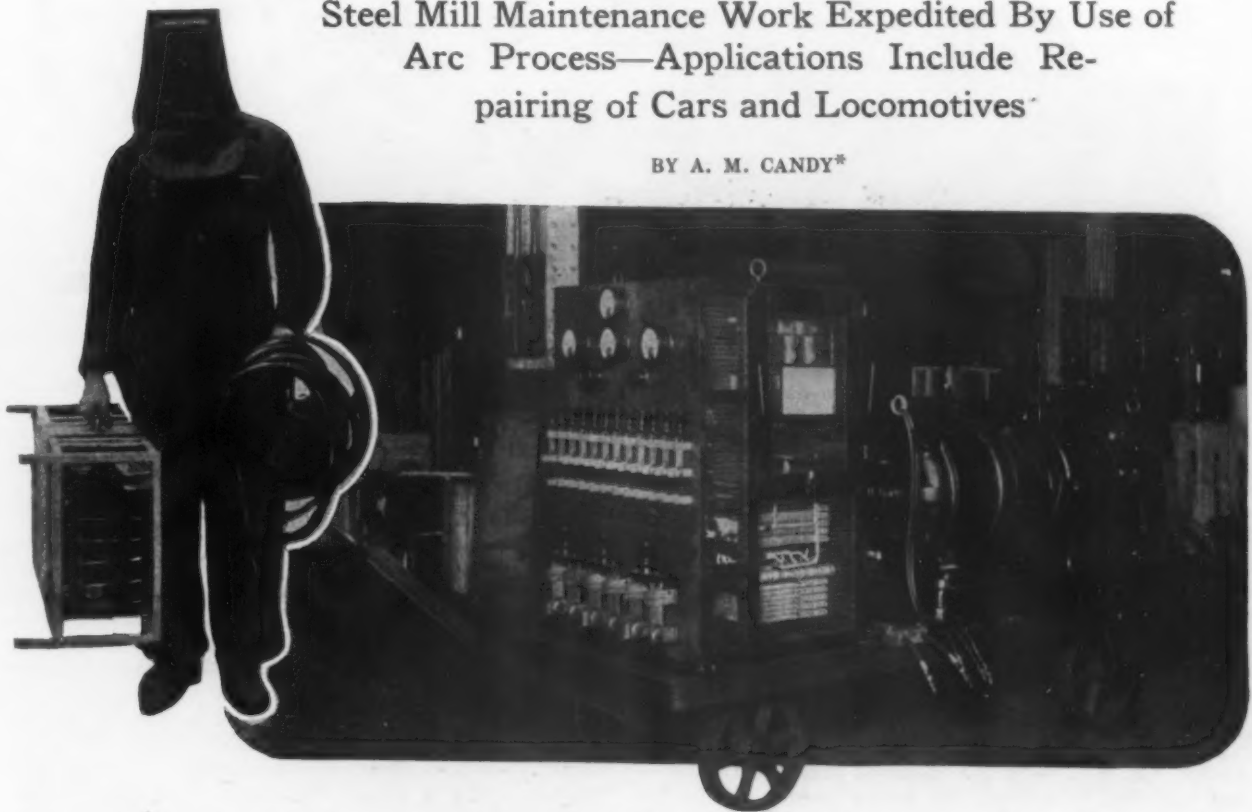
A. F. Wendling & Co. are contractors on excavation and concrete. Riter-Conley Co. is erecting the plate steel and McClintic-Marshall Co. the structural steel. B. F. Fairless is in charge of construction for the Central Steel Co. Freyn Engineering Co., consulting engineer, Chicago, prepared plans, designs and specifications and has a resident supervising engineer on the work. W. S. Orr, chief engineer; Floyd Everhart, blast furnace superintendent; J. D. Donovan, superintendent electrical and mechanical departments, and George D. Evans, purchasing agent, are active in the work. It is expected to finish the plant during April, 1926.

The production executives' division of the American Management Association will hold the second of a series of conferences on employee representation at the Kansas City Athletic Club, Kansas City, Mo., Nov. 30 and Dec. 1.

Economical Repairs by Welding

Steel Mill Maintenance Work Expedited By Use of Arc Process—Applications Include Repairing of Cars and Locomotives*

BY A. M. CANDY*



IT may be stated without fear of contradiction that there is no industrial plant in which the tools of production are subjected to such strenuous service and which sustain greater financial losses due to forced shut downs than a modern steel mill. It follows therefore that there is unusual pressure on the maintenance departments of steel mills to be always on the alert for any processes or apparatus which will enable them to expedite repairs.

By using the arc welding process steel mill operatives have found that a great many repairs previously considered impossible can now be made; that the cost of making numerous repairs has been materially reduced, sometimes to 10 per cent of previous costs; the time required to make various repairs has been lowered; the life of certain repaired parts is greater than the life of the original parts; and that a large number of repairs can be made on auxiliary equipment such as steam locomotives.

One of the most remunerative repair jobs received

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by the welding department is the steel mill driving spindle, the pods of which become worn rapidly in service by the coupling box pods. The appearance of one of these spindles, before and after building up of the pods, may be noted from Figs. 1 and 2, respectively. These spindles, which when new cost several hundred dollars apiece, can be reclaimed for \$25 to \$50 each, depending upon the size. The wear on the pods is principally an abrasive action and, therefore, to obtain the maximum life, it has been found that a deposit of high-manganese steel properly quenched gives the best results. When the pods are badly worn low carbon steel is used as a base and the high manganese material is used only for the last $\frac{1}{2}$ in. to $\frac{3}{4}$ in. layer. In many cases it has been found that pods built up in this manner will outwear the original steel casting.

Teeth of Large Pinions Built Up

Steel mill pinions represent even a greater salvaging opportunity since they are much more expensive, running about \$2,400 for a 46,000-lb. pinion. Not

Fig. 1 (Upper)—View of Driving Spindle Before Building Up of Pods by Means of Welding Arc

Fig. 2 (Lower)—Spindle After Building Up of Pods. A deposit of high-manganese steel properly quenched has been found to give best results



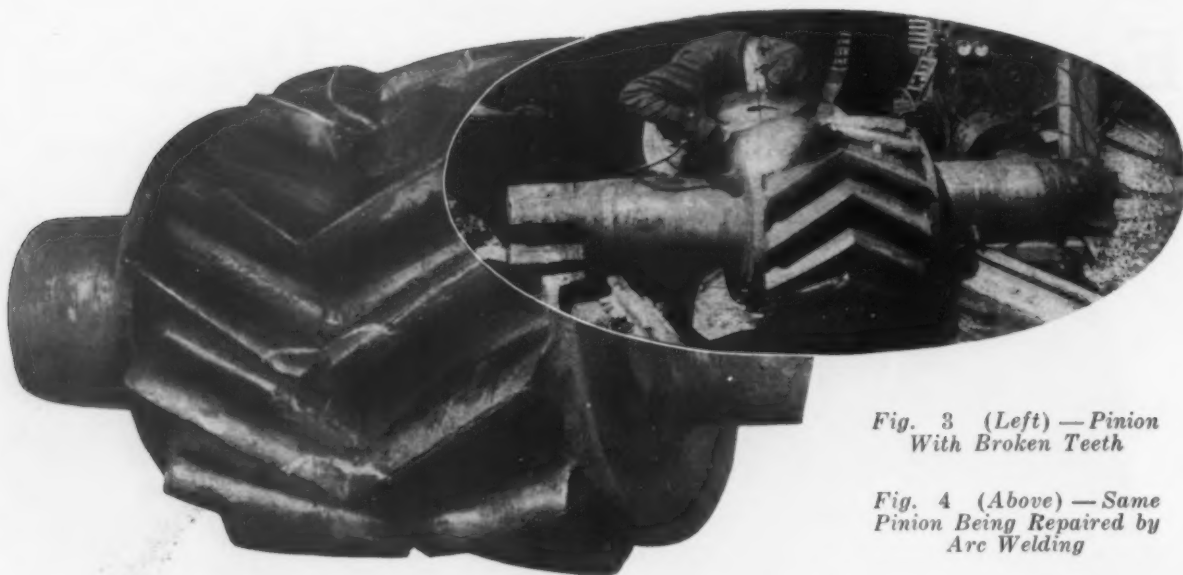


Fig. 3 (Left) — Pinion With Broken Teeth

Fig. 4 (Above) — Same Pinion Being Repaired by Arc Welding

only can the pods on the pinion ends be built up, but worn or damaged teeth can also be repaired. Figs. 3 and 4 show a pinion before and during the operation of repairing broken teeth.

It is not uncommon for collars on rolls to become chipped or in some cases badly broken. These parts can be restored to service readily by use of the welding arc. By continually repairing pinions, rolls and spindles one plant has found it unnecessary to buy any new parts of this type for a period of five years.

Another application is the welding of an open-hearth cooler, Fig. 5 showing the cooler as prepared for welding and Fig. 6 showing the cooler welded, ready for service.

A striking example of savings resulting from employment of the arc process of welding is that of a 1500-hp. vertical blower engine cylinder, which was cracked and welded several years ago. The bore of this cylinder was 80 in. and the stroke 60 in. It was cracked on two opposite sides a distance of $3\frac{1}{2}$ ft. and 5 ft., due to the piston assembly becoming loosened on the piston rod. The price of a new cylinder at the time of the accident was \$12,000 and the manufacturer wanted nine months for delivery of a new cylinder. The two cracks were prepared for welding and finished as shown in Fig. 7, this being accomplished with a minimum amount of disassembly of the engine, since preheating of the parts is unnecessary with the arc welding process. The cylinder was rebored to clean up some score marks but some of the scores were so deep, that it was also necessary to weld them up and grind off the excess metal. This entire job required 327 man-hours and involved an expenditure of \$737.20 as compared with nine months to deliver a new cylinder at a cost of \$12,000, which does not include the

cost of the necessary complete dismantling of the engine and the installation cost of the new cylinder.

Practically all large steel plants have rolling stock including cars and locomotives of both narrow and standard gage. There is inherently a great deal of maintenance work on this equipment which can be done economically with the electric arc. For example, sharp flanges on car wheels and locomotive drivers such as shown in Fig. 8 can be built up to normal gage without removing the wheels and without requiring any finishing operations. A wheel, 36-in. in diameter, can be built up with four complete strings of deposited metal, using 160 amp. and $3/16$ -in. high carbon wire, in approximately 3 hr.

Appreciable savings have also been made in locomotive firebox work such as completely welding fireboxes, and welding flues to rear flue sheet as shown in Fig. 9. In addition to this, patches can be applied readily to side sheets and door sheets; cracked cylinders can be repaired conveniently and broken frames can be welded in many cases without dropping the wheels. In the yards special track work, such as switch points, frog points, crossings and battered rail-ends, can be built up and ground to the original contour.

Central Welding Department Advisable

To carry on welding operations in a steel plant it is usually advisable to establish a central welding department where a majority of the work can be brought for repair. For such an installation one or more motor-generators of the multiple-operator type of about 500 amp. or 1000 amp. capacity at 60 volts are usually used. This equipment, with proper control panels, will provide welding current for a number of operators work-

Figs. 5 and 6 — Open-Hearth Coolers May Be Quickly Repaired. A broken cooler is shown at the right, and the same cooler welded and ready for service, at the left



ing from a single machine. Where it is necessary to take the welding equipment to the work a multiple-operator portable set can be used for capacities of 300 to 500 amp. If only sufficient capacity for an individual operator is necessary the portable single operator type of equipment may be used. When equipment of unusually light weight is desired and where direct-current service is available at 500 to 600 volts, a resistance welder that weighs 160 lb. and can be carried by two men, can be employed, and if the direct-current service is 230 to 275 volts a much lighter equipment, weighing 60 lb., may be used, this unit being carried by the operator.

In addition to the work previously mentioned arc welding can be used to advantage in steel mills, in the repair of cracked steam hammer cylinders; ingot stripper rams; furnace doors and frames of steel; open-hearth furnace reversing valves; worn blooming mill housing keyways; worn jaw clutches for motor-driven

being considered. The foundrymen have not held a convention in Detroit since 1910. Sufficient hotel accommodations are now assured, not only because of the 14,000 hotel rooms available but also because the convention bureau and the hotels of the city have agreed



shears, and worn "crabs" on rolling mill engines. Other applications include steel oil drums; pipe manifolds; building mill stoves replacing salamanders; steam pipe line brackets; repairing defective forgings; worn swaging dies; and the building up of locomotive main rods, side rods, cross heads and piston rods.

The Foundrymen's Convention in 1926

With the idea of making the annual gathering of American foundrymen next year the greatest event in the history of the foundry industry, a comprehensive program has already been outlined. The convention and exhibition, which will be the thirtieth to be held by the American Foundrymen's Association, as has been announced, is scheduled for Detroit for the week of Sept. 27, 1926. There will also be held at the same time the second International Foundry Congress. Formal invitations have been mailed to 27 European foundry organizations and a good attendance from overseas is expected. Allied organizations in this country are also to be invited.

The exhibition next year will be on a larger scale than any heretofore attempted. It will be known as the International Exposition of Foundry and Machine Shop Equipment and Supplies. The opening of this exhibition on Friday or Saturday, Sept. 24 or 25, is



Fig. 7 (Left)—Cracked Cylinder of Blowing Engine Repaired by Welding

Fig. 8 (Above)—Sharp Flanges on Car Wheels and Locomotive Drivers Are Built Up Without Removing Wheels

Fig. 9 (Below)—Welding Flues to Rear Flue Sheet



not to schedule other prominent conventions in the same week. Although the convention and exhibition is to be held at the fair grounds, arrangements have been made for heating the buildings in case of necessity.

An additional open-hearth furnace was placed in operation, Oct. 26, at the American Steel Foundries, Granite City, Ill. This furnace has been down since about the middle of August.

Metal Molds by a New Process

Accurate Castings Claimed Possible by "Plastic Process"—New Electric Resistance Furnace Used—Permanent Molds

BY M. S. CLAWSON*

A NEW process for making intricate molds and dies has recently been developed. It is known as the "Plastic Process," by which castings are made to almost exact size and form. These castings or dies are used for stamping and forming sheet metal, bakelite, asbestos compositions, etc. The demand for such tools in this country has increased to such an extent that progress in their economical manufacture has not kept pace with it. In consequence foreign competition has crept in rapidly, despite the high duty. A hindrance to progress here has been the fact that the materials to be formed in these molds or dies are often excessively destructive to the metals now being used. In the plastic process these and other difficulties are believed to have been overcome.

In discussing this process three important factors are to be considered:

1. A new process by which castings are made to almost exact size and form.
2. An improved melting equipment.
3. Special alloys for the products which have been developed.

The plastic process relates to the casting of steel and nickel alloys to sufficiently close dimensions so that only grinding and finishing are required to produce a complete die for stamping or a mold for forming materials now being used for these different purposes.

A material has been found which will withstand the high temperature of molten steel or nickel, producing a casting entirely free from scale. Furthermore, there is no warping of the surface of the mold—the plastic surface itself—nor of the metal, thus insuring a trustworthy method of producing molds and dies at a considerable saving in cost. By this process castings for use as molds or dies are made having a surface requiring the removal of only 0.0025 in. to 0.003 in. for finishing.

Another advantage of the process is the possibility of employing metals which are non-corrosive; some of the present steels, for example, incorporated in such molds or dies have to be oiled and protected from moisture—a decided disadvantage in many ways.

While details of the carrying out of the plastic process cannot be made public now, illustrations of the results of its use are possible. Some of these follow:

Some Examples of the Process

Fig. 1 represents a soap mold, for instance, which was made from a brass model. This mold was cast in a tungsten steel by the plastic process and has already pressed over a half million cakes of soap containing pumice. It shows very slight effects from wear. The

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steel is not affected by alkalis, nor is there any trouble from rust.

This particular soap material is very abrasive to steel, and the other dies which have been used heretofore for the same purpose stand up for only about 1500 gross cakes.

Fig. 2 represents a fancy bottle mold. The model for such a mold is very easily made in wood or plaster and the rose design in wax. From this a reproduction of the design is made in any alloy desired, such as steel or nickel, by the plastic process. The one shown was made in a nickel-copper alloy.

Fig. 3 shows two steel chocolate forces. With a die and force of both back and front, tins are stamped. These tins are clamped together and a fine representation of an owl is made in chocolate by pouring the soft chocolate material into an opening in the bottom. Several large companies in this country do nothing but produce these tins in this way and have forms of every description, representing animals, flowers, etc. Tins are stamped out by these companies and shipped to the candy maker. By this new process the finest lines can be brought out, detail in fact which is prohibitive to make in steel, by hand or any mechanical means.

Fig. 4 represents seven different articles applicable to the plastic process. The golf heads were cast in steel molds which are cast by the plastic process. Into these molds a nickel alloy was poured, producing a casting which is non-corrosive and takes a fine finish. This is a good illustration of a permanent mold product, which will be taken up later.

Fig. 5 shows a plastic reproduction in steel of a General Pershing fob. This was taken from a bronze piece used as a pattern. Some of the lettering on this piece is only 1/16 in. in size. Lower temperature metals have been cast, showing fine detail, but the casting of steel alloys is an entirely different field and offers many problems which do not arise in forming lead, zinc, brass, bronze, aluminum, etc.

Fig. 6 is a reproduction of a printing plate cast in steel. It appears that the life of the regular lead or copper printing plate is comparatively short. By the plastic process, these are cast in steel and can be used in printing coarse paper, cloth or wherever long life or rough usage is called for.

In making stamping dies for such pieces as door plates allowances are made for clearance, the exact thickness of the metal to be formed, this clearance being taken care of on the pattern.

Where registration of the two dies are necessary, impression lugs are used until the plaster pattern is complete, after which dowel pins are inserted through both upper and lower molds. This insures perfect registration of the complete form. To make forms similar to the lion shown in Fig. 4 it is not infrequent that

THE first presentation of two new developments is contained in this article: Permanent molds of a novel and distinctive character and a unique electric melting furnace. Both represent several years of research by the author, who is an electrochemist. There is a demand for durable metal molds for making toilet articles and confectionery as well as for metal castings such as high-speed steel tools.

eight or more sections are required to take care of undercuts. These are kept in registration in the same way.

Steel and Nickel Alloys

Probably the most interesting metal, next to nickel, is high-speed steel. It is also the most important and, furthermore, it is the most uncertain as regards its efficiency in comparing one make with another.

Numerous cases can be cited where the standard 3.5 per cent chrome, 18 per cent tungsten, 0.65 to 0.75 per cent carbon steels differ in efficiency on different jobs, so that it can be said without any question that there is no one grade of high-speed steel or alloy which will answer every purpose in a machine shop or manufacturing plant. This condition makes the disposition of high-speed steel for tools an art, which results in small profit to the manufacturer owing to the excessive selling cost. In addition to the grade of steel, the method of grinding a given brand is a factor which may mean success or failure. This can hardly be appreciated by anyone who has not had experience in disposing of this product.

For stamping dies the most suitable material was found to be a chrome-tungsten steel, similar to the standard high-speed steel formula. For bottle molds, a nickel-copper alloy works well with the plastic process and, it is claimed, it is being used now in Europe

difficulty, owing to the large amount of nitrogen absorbed during the melting period, and this gas must be given up almost instantly on pouring, otherwise our old friend "blow holes" will appear thick and fast.

Melting Equipment

Most of this work has been done with a resistance furnace. As far as the term is concerned, it is not a new type of melting device. The design, however, appears to have new features.

The resistance principle of constructing a unit of this nature would be almost the first conception of an



Fig. 1



Fig. 2

Fig. 1—A Soap Mold Cast of Tungsten Steel

Fig. 2—A Fancy Bottle Mold Cast in Nickel

Fig. 3—Chocolate Mold in Two Parts Stamped Out of Tin With Dies Cast by the Plastic Process



Fig. 3

Fig. 5—A Plastic Reproduction in Steel of a General Pershing Fob

Fig. 6—A Printing Plate Cast in Steel



Fig. 5



Fig. 6

for making fancy bottles. This alloy is not easily machined, therefore it would not be suitable for hand-made molds where the cost of labor is excessive.

Permanent molds in connection with the plastic process are usually made of an iron-silicon alloy, similar to a well-fluxed fine-grained cast iron. This will withstand sudden shocks from heat and cold better than any other combination. This work deals with the casting of steel and nickel alloys, instead of the lower temperature metals such as brass, bronze, aluminum, etc.

As the furnace to be described is especially suitable for so-called high temperature metals, very little has been done with the latter named elements and alloys. A nickel-tin alloy can be used for fittings in creameries, dye houses, petroleum works, chemical plants, etc. The alloy which has been developed is almost a pure nickel, requiring only sufficient tin to permit of a rapid evolution of the gases which were absorbed on melting.

It is well known that pure nickel is cast with great

electrical means of melting metals. At the same time, when the engineer actually undertakes to develop one for positive service for steel making or for melting nickel alloys, there are many points to consider, the most important of which is: "How can a metal contact be made to a resistance member, which must maintain a temperature of say 1500 deg. C. through a melting period of one hour, designing said resistance member and the contacts so that the greatest amount of heat will be centered at a point where the cold metal will be continually washed by the fluid metal as soon as the first portions are melted?" It is necessary also to have some method of keeping the contacts cool.

One illustration, Fig. 7, shows a construction of this sort, in which a 60-lb. pot of chrome-tungsten steel or nickel alloy is melted and poured in 45 min., starting with a cold crucible. It represents a bank of four furnaces with a volt control switchboard and the volt regulating transformers set into wells.

Transformers and regulators are designed to be connected with any of the standard power currents and the primaries so tapped that any voltage from 8 to 18 can be passed through the resistor. It is necessary to make these changes of voltage at the primary windings, as it would be almost impossible to change in any way the secondary circuit, owing to the large cross-section of copper necessary. The secondaries have a capacity of 40,000 amp., and it would therefore not be practical to design a means of changing this voltage at the secondary.

With this type of furnace the metal is not subjected to the high temperature of the arc, as with an arc furnace, nor is it brought in contact with oxidizing atmospheres, as is the case in an oil, gas or coke furnace.

It has been clearly demonstrated that it is practically impossible to produce a reducing atmosphere in

any type of fuel furnace and maintain a sufficient temperature properly to melt steel or nickel. There is always a predominance of oxygen, which has the effect of unbalancing the proportions of the alloy.

With the resistance furnace the condition of the atmosphere is under control. In other words, there are no foreign gases playing over the metal. This can be easily proved in watching a pot of brass melt. This alloy can be melted and brought up to the pouring temperature without producing any of the zinc vapors which arise when brass is being melted in a fuel furnace. Nothing more than a lake of red hot metal is observed.

The furnace has two water-cooled heads which press against the ends of the crucible. The contour of the crucible is such that the greatest resistance will be through the bottom. Attempts to use the standard crucible are directly contrary to this principle; in fact, one who has studied the subject finds that, to prevent cracking, a "steel crucible" must have a certain contour and this form necessitates a thick bottom. Therefore, it would be impossible to bring this part up to a steel melting temperature and would therefore be useless as a resistor.

A properly constructed crucible for a resistance furnace will have a thin bottom, reinforced on the sides and ends, so that cracking is not liable to occur.

Permanent Molds

Wartime experiences with tungsten alloy tools demonstrated the fact that sand molding is a very expensive luxury and a crude method of forming metals, as the danger of sand washing and air pocketing is so great that it can almost be said that a perfect sand mold casting is impossible, notwithstanding the extreme care and study which have been devoted to the subject.

When one realizes that the smallest particle of dust or loose sand is bound to have upon it a film of moisture and that moisture must expand as soon as there is a rise in temperature, it is not difficult to understand the cause of air pockets in sand mold castings due to steam. To go further it might be said that when a mold is baked until the binder is about to break down, if necessary, the difficulty is not then solved in case the mold is allowed to cool no more than 150 to 200 deg., as the law of condensation gets in its work and very frequently ruins a mold by causing the surface to break away and wash into the metal, the same as when molten metal drops upon a concrete floor.

This subject was studied carefully after considerable experience with permanent molds, before ever having used sand molds. The permanent mold seemed the logical way of forming metals. Therefore it was adopted from the beginning of the research work which resulted in the development of the furnace, plastic method and the different alloys.

Cast High-Speed Steel Tools

At the time the demand came for cast high-speed steel in as large production as possible, it was neces-

sary to use sand molds. At plants where permanent molds had never been used the molders continually charged the metallurgist with a lack of knowledge of steelmaking, and the metallurgist blamed the molders for insufficient knowledge of making molds for this particular purpose.

Up to the time when the high-speed steel industry experienced a decided slump, a great deal of difficulty had been experienced in making the proper molding material, as well as knowing how to construct the mold to prevent air pocketing and sand washing. There have been a great many heated debates between the molder and metallurgist regarding the cause of such a large percentage of defective castings. The metallurgist who had not had experience with permanent mold casting of high-speed steel was as much in the dark as the expert molder; therefore the debate frequently assumed the proportions of a battle.

Metallurgists who had been familiar with permanent molds, on going into plants where nothing but sand had been used, immediately saw that their good steel could play many tricks in sand molds but was absolutely helpless from their inability to make permanent molds in many forms which were called for, such as milling cutters, end mills, countersinks, etc. At that time only molds for bar stock and shearing knives had been developed.

From this time on, however, manufacturers of rolled or hammered stock will have a keen competitor in cast high-speed steel for tools, stamping and swaging dies, molds, etc. It can be manufactured much cheaper and, on certain classes of work, is far superior. With the plastic process all of the standard forms of tools can be made in permanent molds. With brass forms which are used as patterns, these molds can be readily duplicated, thousands of times if necessary.

At the present time there is no record of the life of a good permanent mold for steel or nickel castings, as far as we know, but there are permanent molds made for these purposes which show no signs of breaking down after 300 fillings. It is well to assume that these will make no less than 2000 to 2500 castings for it has been found that, when cracking begins, it does so early in the game. Probably less than 25 castings will start the process.

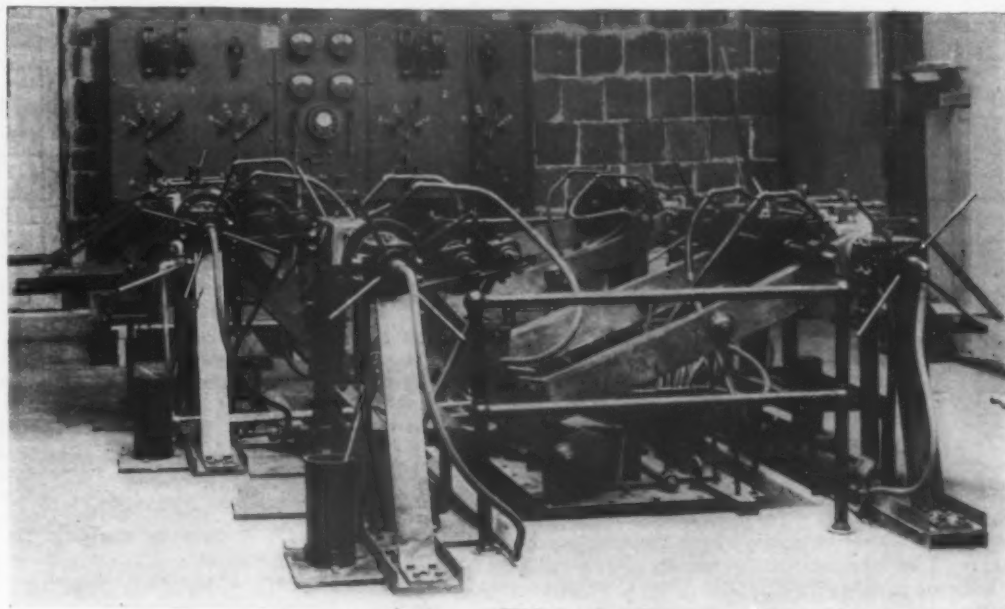
With a well-developed system of handling the making of permanent molds these can be produced cheaply and in a very short time. When they are properly designed, there will be no air pockets, blow holes nor serious defects. Keyways, etc., can be cast with these molds, so that a high-speed steel tool, such as a milling cutter, can be made which will require only sharpening after the keyway and hole have been ground to size.

The great advantage in using a permanent mold, over the sand form, disregarding all of the other faults in the sand mold, is that when air pocketing is once eliminated, no further trouble is experienced with the filling of the mold in producing a good casting. In other words, when an air pocket is found in a casting from a permanent mold, that same air pocket will



Fig. 4—Seven Different Articles Cast in Molds by the Plastic Process

Fig. 7—New Type of Electric Resistance Furnace for Quick Melting of Steel, Nickel and Alloys. Four furnaces are included in this group



appear in every casting and in the same position, so that the designer has some basis to work upon in getting rid of this trouble.

When air pockets are found in sand mold castings, they will be found in one place at one time and probably at an entirely different point in all of the other castings, using the same pattern and molding method.

Too much dependence has been placed upon risers for carrying away the sand and slag from the pattern cavity as has been proved in making cutters, end mills, etc. It appears that either will lodge at any constricted point or wherever there is a decrease in the rate of

flow of the metal, regardless of the size of the riser.

Forgetting the other advantages in the permanent mold for casting steel, it should be added that the structure of the metal is very different, producing a fine grain and a more uniform surface. Of course the chilling effect of the permanent mold must always be taken into account. Thin sections must not be cast against thick parts of a mold, otherwise the casting will come out very brittle and so dense that it may fracture from simply dropping a short distance. The work here described is covered by numerous patents on the furnace, process and alloys.

FORM NEW STEEL COMPANY

Sheffield Steel Corporation Succeeds Kansas City Bolt & Nut Co.

The Kansas City Bolt & Nut Co., Kansas City, Mo., has been succeeded by the Sheffield Steel Corporation, a new corporation. A controlling interest in the Kansas City Bolt & Nut Co. was recently acquired by W. L. Allen, president, and now practically all of the stock has been taken over by Sheffield Steel Corporation. The new company has issued \$1,250,000 of 7 per cent cumulative preferred stock and 75,000 shares of no par common stock, all of which have been sold. W. L. Allen is president of the Sheffield Steel Corporation and other officers are R. L. Gray, vice-president; L. L. Middleton, secretary; H. R. Warren, treasurer; Ernest Baxter, general manager of sales; J. C. Shepherd, assistant general manager of sales; J. W. Anderson, assistant general manager of sales.

The Kansas City Bolt & Nut Co. was organized in 1888 for the manufacture of bar iron, bolts, nuts and similar products. The first unit consisted of bar iron mills and a bolt and nut plant. In 1920 construction of a steel plant was started, which was completed in 1922. In March, 1924, the iron mills were revamped to permit the rerolling of old steel rails as well as bar iron. On April 1, 1925, the construction of the first unit of a sheet mill was completed. This mill was laid out to roll a wider range of sizes than any other sheet mill in the country, and has successfully rolled sheets as wide as 72 in., whereas other two-high sheet mills do not ordinarily roll wider than 60 in. The sheet plant is laid out for six additional mills which will produce black sheets to be sold as such or to be galvanized.

The steel works as it now stands consists of two 65-ton open-hearth furnaces, but a third is now under construction. The rolling equipment embraces three stands of 24-in. three-high billet and sheet bar mill, and a Morgan semi-continuous merchant bar mill. The bar iron and rerolling rail mills and the bolt and nut works are housed in separate buildings. The growth of the company is reflected in its record of sales. In 1921 they totaled 29,893 net tons, in 1924, 72,480 tons, and in 1925 they expected to aggregate fully 100,000 tons.

To Determine Duty on Ships Imported for Scrap

WASHINGTON, Nov. 10.—The question as to whether an "imported" cruiser should be assessed as "manufactures of metal" or as a vessel subject to the tonnage laws is to be determined as a result of the action of the United States Court of Customs Appeals, which has just reversed the judgment of the Board of General Appraisers. The board had held that an old Canadian cruiser brought into this country by Henry A. Hitner's Sons Co., Philadelphia, was not merchandise but was a vessel subject to the tonnage laws. The Hitner company protested the assessment by the collector, which called for a duty on the old cruiser as manufactures of metal. In referring to the judgment of the board the court demanded the appeal for a trial on its merits.

Thirty electrically driven shears are to be supplied to the Youngstown Sheet & Tube Co. in its Indiana Harbor tin mill by the Streine Tool & Mfg. Co., New Bremen, Ohio.

ADOPTS 39-FT. RAIL

Railroad Association Approves Standard Length—Lessened Expense and Accident Hazard

As a further step to bring about increased economy in the operation of the railroads of this country, the American Railway Association has approved new specifications by which the length of rails used by the lines of this country is to be increased to 39 ft. This means an increase of six feet over the rail in present use, although the weight per yard will continue to be the same.

By making an increase in the length of the rail, there will be a marked saving to the railroads in not only the cost of laying new rails but also in the maintenance of track. The increased length means a reduction of 16 per cent in the number of rail joints and a saving of about one-sixth of the total amount of expenditure required for bolts, nuts, joint bars and spring washers used in connecting rails together.

It is estimated that 50c. out of each \$1 spent for track maintenance goes for maintenance of joints, ties and ballast under the point where two rails are joined together. The increase in the length of the rail, therefore, will mean a saving of about 16 per cent in such expenditures, as there will be fewer joints.

Surveys have shown that a large number of the breaks and the greatest wear and deterioration in rails occur at the point where they are joined together, so that by increasing the length of the rail and reducing the number of such points, the chances for accident due to broken rails are reduced. In addition, cars passing over a track constructed of longer rails will move more smoothly than over a track where shorter rails are used, which will result in a saving in the wear and tear on railroad equipment.

[Similar action, as taken by the American Railway Engineering Association last March, was reported at page 823 of THE IRON AGE, March 19, 1925. In our issue of Aug. 28, 1924, page 495, appeared a 5-page article describing alterations in the plant of the Colorado Fuel & Iron Co., to handle 39-ft. milled-end rails.]

Taylor Society Annual Meeting

"The Relations of the General Manager and His Principal Executives," a symposium to be led by six executives of national reputation, will be one of the features of the annual meeting of the Taylor Society, which will be held in the Engineering Societies Building, 29 West Thirty-ninth Street, New York, Dec. 2, 3, 4 and 5.

Of the ten sessions, three will be held jointly with the management division of the American Society of Mechanical Engineers. At the joint meeting planned for Friday evening, Dec. 4, William Green, president of the American Federation of Labor, will speak on "Labor's Ideals Concerning Management."

Two special sessions for teachers of management have also been arranged, as well as a special luncheon meeting for younger members. At the latter, C. L. Barnum, comptroller, American Radiator Co., will speak on "Preserving Ideals in the Solution of Practical Problems."

"Sales Policies and Sales Methods: An Appraisal by Purchasing Agents," by Fred J. Arthurs, general purchasing agent Larkin Co., Inc., Buffalo, and "Purpose as a Psychological Factor in Management," by Ordway Tead and H. C. Metcalf, are other papers that will be presented.

Mechanical Engineers' Meeting

Among the 60 papers and reports to be considered at the annual meeting of the American Society of Mechanical Engineers, at the Engineering Societies Building, New York, Dec. 1 to 4, may be mentioned those in the subjoined list. On page 1204, of last week's issue, were announced the general features of the meeting, including a lecture by Secretary of Commerce Hoover on the evening of Dec. 1 and one by Dr. Zay Jeffries on Dec. 3.

Machine Shop Practice

Principles and Advantages of Optical Methods for Measuring Machine Parts, by Henry F. Kurtz; and The Tension Ratio and Transmissive Power of Belts, by Prof. C. A. Norman, Ohio State University, Columbus (Tuesday morning, Dec. 1).

Question Marks in Machine Design, by F. E. Cardullo, chief engineer, G. A. Gray Co., Cincinnati; Some Comparative Wear Experiments on Cast Iron Gear Teeth, by Prof. G. H. Marx, Prof. L. E. Cutter and Prof. B. M. Green, Stanford University, Cal.; Normal Pitch, The Index of Gear Performance, by G. M. Eaton, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. (all on Wednesday morning).

Springs

Phosphor Bronze Helical Springs from the Standpoint of Precision Instruments, by W. G. Brombacher; The Present Status of Art of Manufacturing Small and Medium Diameter Steel Helical Springs, by F. H. Brown; Characteristics of Weighing Springs, by J. W. Rockefeller, Jr., John Chatillon & Sons, New York; Springs for Electrical Measuring Instruments, by B. W. St. Clair; Formulas for the Design of Helical Springs of Square or Rectangular Steel, by C. T. Edgerton; An Outline for the Application of Fatigue and Elastic Results to Metal Spring Design, by T. McLean Jasper (all on Wednesday morning, Dec. 2).

Materials Handling

Materials-Handling Problems and Their Solution, by Frank D. Campbell, Lamson Co., New York, and Safety in Materials Handling, by D. S. Beyer, chief engineer, Liberty Mutual Insurance Co., Boston (Wednesday morning, Dec. 2).

Industrial Furnaces

Industrial Furnace Efficiency, by V. Z. Azbe, consulting engineer, St. Louis, and Fuels and Furnaces for Industrial Heating, by Prof. W. Trinks, Carnegie Institute of Technology (both on Wednesday morning, Dec. 2).

Management

The Influence of Plant Design on Plant Efficiency, by Harold T. Moore, Day & Zimmerman, Inc., Philadelphia; and Carbon Dioxide as an Index of Fatigue, by W. N. Polakov, Walter N. Polakov & Co., New York (both Thursday morning, Dec. 3).

Various Subjects

The Value of Higher Steam Pressures in the Industrial Plants, by William F. Ryan, Solvay Process Co., Syracuse, N. Y.; and The Supply of Industrial Power, by W. H. Larkin, Jr., Larkin & Co., Butler, Pa. (both Tuesday afternoon, Dec. 1).

Steel Castings for Use in High Pressure Steam Lines, by Prof. A. E. White, University of Michigan, Ann Arbor, Mich.; The Quality of Bolts for Use in Power Plant Construction, by W. P. Wood; Furnace Refractories, by E. B. Powell, Stone & Webster, Inc., Boston; Present State of Industrial Psychology, by Lillian M. Gilbreth, F. B. Gilbreth, Inc., Upper Montclair, N. J. (Thursday afternoon).

COMING MEETINGS

November

American Institute of Steel Construction. Nov. 11 to 14. Annual convention, White Sulphur Springs, W. Va. Charles F. Abbott, 350 Madison Avenue, New York, executive director.

National Foundry Association. Nov. 18 and 19. Twenty-ninth annual convention. Hotel Astor, New York. J. M. Taylor, 29 South La-Salle Street, Chicago, executive secretary.

American Society of Mechanical Engineers. Nov. 30 to Dec. 3. Annual meeting, Engineering Societies Building, 29 West Thirty-ninth Street, New York. Calvin W. Rice, 29 West Thirty-ninth Street, New York, secretary.

National Exposition of Power and Mechanical Engineering. Nov. 30 to Dec. 5. Grand Central Palace, New York. Charles F. Roth, International Exposition Co., Grand Central Palace, New York, manager.

OCTOBER STEEL OUTPUT

Increase Over September 9841 Tons Per Day
or 7.3 Per Cent

A substantial increase in the steel ingot production of the country was registered in October. At 144,183 gross tons per day the October output was 9841 tons per day larger than that of September—an increase of 7.3 per cent. This compares with an increase in September over August of about 2 per cent. The August increase over July was about 11 per cent.

The statistics of the American Iron and Steel Institute show that the October output of the companies which made 94.43 per cent of the country's total in 1924 was 3,676,109 tons. Assuming that the 5.57 per cent not reporting produced at the same rate, a total October production is indicated at 3,892,946 tons. The corresponding annual rate is over 45,000,000 tons, or about 84 per cent of capacity.

The table gives the production by months of the different kinds of steel, together with the estimated daily rate for all companies.

Monthly Production of Steel Ingots Reported by Companies
Which Made 94.43 Per Cent of the Steel Ingot
Production in 1924
(Gross Tons)

Months, 1925	Open- hearth	Bessemer	All Other	Calculated Monthly Production All Companies	Approximate Daily Production All Companies
Jan.	3,262,748	689,996	11,960	4,198,564	155,502
Feb.	2,931,964	602,042	13,014	3,756,243	156,510
March	3,336,169	614,860	13,633	4,198,520	161,482
April	2,857,802	515,715	14,182	3,587,524	137,982
May	2,754,130	497,708	13,790	3,458,253	133,010
June	2,538,988	476,945	12,490	3,207,056	123,348
July	2,444,969	457,095	13,547	3,087,590	118,753
Aug.	2,696,667	523,734	12,914	3,424,034	131,694
Sept.	2,737,251	547,121	13,977	3,492,904	134,342
Oct.	3,075,995	584,567	15,547	3,892,946	144,183
10 mos.	28,636,683	5,509,783	135,054	36,303,634	139,629
1924					
Jan.	2,766,534	667,032	12,577	3,649,913	135,182
Feb.	2,902,641	695,905	14,085	3,826,246	153,050
March	3,249,783	706,801	15,260	4,206,699	161,796
April	2,575,788	573,381	12,356	3,348,466	128,787
May	2,060,896	425,099	6,648	2,640,034	97,779
June	1,637,660	310,070	2,622	2,065,676	82,627
July	1,525,912	241,880	5,162	1,877,789	72,223
Aug.	2,042,820	361,781	5,764	2,552,891	98,188
Sept.	2,252,976	409,922	6,864	2,827,625	108,756
Oct.	2,505,403	438,468	7,058	3,125,418	115,756
10 mos.	23,520,413	4,830,339	88,396	30,120,757	115,406
Nov.	2,479,147	459,349	8,403	3,121,149	124,846
Dec.	2,811,771	546,506	11,707	3,569,251	137,279
Total	28,811,331	5,836,194	108,506	36,811,157	117,984

Rough Handling of Freight Cars at
Terminals

An intensive campaign to bring about still further reductions in loss and damage to shipments resulting from rough handling of freight cars has been inaugurated by the District Freight Claim Conferences comprising the Freight Claim Division of the American Railway Association.

In view of the fact that a majority of the claims are due to rough handling at terminal points, it is planned to have surveys made at various terminals by a committee on rough handling appointed by each district claim conference in cooperation with the railroads entering the terminals. As soon as the surveys have been completed the committee will make recommendations to suit conditions in the terminals in an effort to bring about a reduction in loss and damage claims growing out of the rough handling of freight cars at those points.

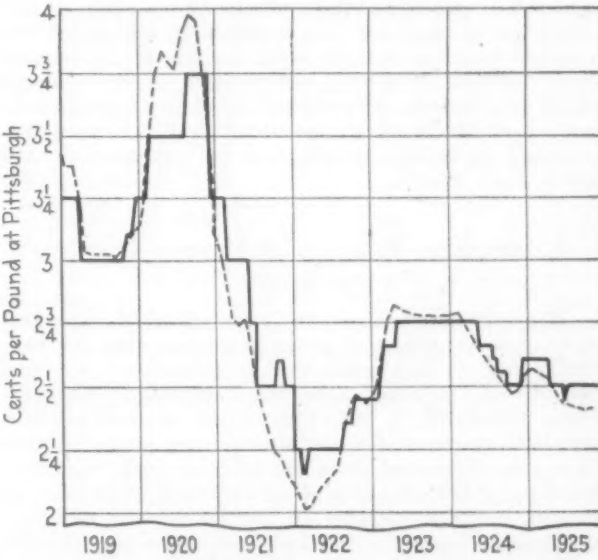
Rough handling of cars not only causes damage to freight in transit, but it also results in considerable damage to railroad equipment. Hence it is hoped not only to effect a saving for shippers, but for the railroads as well.

A survey of various terminals in the southern Atlantic States is already under way, and there has also been one at St. Louis and East St. Louis. In connection with the situation at St. Louis and East St. Louis

the local committee has recommended that steps be taken to reduce to a minimum the amount of switching in that terminal and that, where switching is necessary, it be done under certain restrictions to minimize the opportunities for damage. The committee has also recommended that closer attention be given by trainmen to the transmission of signals to the enginemen and that, where there is a space between cars on a siding, it be closed by shoving rather than by having the engine "kick" a car.

Wire Prices Run Parallel with Finished
Steel Composite

Plain wire quoted at Pittsburgh has varied in price during the past seven years from a minimum of 2.15c. per lb., to a maximum of 3.75c. per lb., as shown in the accompanying diagram. For some considerable periods of time it has maintained a stability of striking character. Thus, from the end of April, 1923, into May, 1924, the price for more than a year was 2.75c. More than a half year in 1919 saw the price unchanged at 3c. Again in 1920 a full six months at 3½c. was experienced. In 1922 the price was 2¼c. for six



Seven Years of Wire Prices (Solid) Compared with
THE IRON AGE Finished Steel Composite Price (Dotted)

months, lacking one week. Except for a momentary drop late in June of this year, the price has stood at 2½c. since the middle of April.

Alongside the graph of wire prices will be found that of finished steel (THE IRON AGE composite price) plotted on monthly averages through the same seven years. There is a striking similarity between the two curves, with only an occasional marked departure. The maximum for finished steel composite is greater than the maximum for wire, while the minimum for the composite is below the minimum for wire. Fluctuations in the composite were thus somewhat greater than for the wire.

New York Oil Burner Association

The New York Oil Burner Association was recently organized under the auspices of the American Association of Oil Burner Manufacturers to deal with local problems in the New York metropolitan area. Officers include Charles S. Winston, Cornell Utilities Co., president; E. G. Rhoades, Kleen Heat Atlantic Distributing Co., vice-president, and Leod D. Becker, secretary and treasurer. Mr. Becker is also secretary of the national association, with headquarters at Galesburg, Ill. One of the principal local problems confronting the New York association is the matter of fuel oil rules and their enforcement. It is also the intention to take up such problems as common advertising, the elimination of unfair competition, the investigation of fires attributed to oil burners, etc.

Anaconda Company Takes Option on Silesian Zinc Mines

The Anaconda Copper Mining Co., New York, has taken a six months' option on a controlling interest in the Von Giesche mining properties in Upper Silesia. The Von Giesche mines constitute one of the largest known bodies of high-grade zinc ore in the world, and the Von Giesche works have a capacity of about 150,000,000 lb. of zinc a year, while the coal mines underlying the zinc workings are among the most important producers of fuel in Germany.

The acquisition would make the Anaconda company the largest zinc producer in the world. Its properties in this country are the largest in North America and the Von Giesche mines are the largest in Europe. From 16 to 18 per cent of the zinc production of the world has been brought under Anaconda management.

Yale & Towne Company Acquires Miller Lock Works

The Yale & Towne Mfg. Co. has purchased the Miller Lock Co., Philadelphia, which will hereafter be operated as the Miller Lock Works of the company.

Arthur C. Jackson will continue in charge of the manufacturing operations, with the title of works manager. Edward S. Jackson will retire from the business at his own request, and the direction of sales and selling policy will be in charge of E. C. Waldvogel, vice-president in charge of sales, to be addressed at the Miller Lock Works.

Australian Branch of Henry Disston & Sons

Henry Disston & Sons, Inc., Philadelphia, manufacturer of saws, files and tools, announces that its Australian branch has moved to larger quarters in a new two-story factory and sales office building at Camperdown, Sydney, N. S. W. This branch is provided with complete equipment for manufacturing saws and knives from steel furnished from the Disston works in Philadelphia and for all kinds of repair work. The Disston organization also includes an English Disston company at London, England, a factory and sales organization in Toronto, Ont., and branches in Vancouver and the principal cities of the United States.

Latrobe Electric Steel Co. Enlarging Its Plant

Extensions and improvements are in progress at the plant of the Latrobe Electric Steel Co., Latrobe, Pa., which find their explanation in the fact that the management not only recognizes that stainless iron and steel have "arrived," but that they are going to find increasing use as time goes on. A new building 60 ft. x 400 ft. is under construction which will house a new 10-in. 3-high, 6-stand mill, built by the Mackintosh-Hemphill Co., Pittsburgh, driven by a 500-hp. motor. Auxiliary equipment will include shears, stretchers, straightening machines, and also a battery of annealing furnaces. A lean-to of this building, 30 ft. x 200 ft. will house the motors, drives and also provide space for a machine shop. A Farrell 2-speed drive is to be installed.

The new building is to be devoted exclusively to stainless iron and steel, more particularly the latter, for kitchen, table and pocket cutlery, razors and safety razor blades and dental and surgical instruments. The company already has built a new cold-rolling department, with a mill capable of rolling flats up to 6 in. wide, with straightening machines, centerless grinders and draw benches. Double bevel rolling is common practice in both the hot and cold mills. Rolling the blank thin at both edges means in the case of table knives, for example, that the backs and cutting edges are made in the first operation and that means less grinding to reach final form.

Another improvement is a new transformer plant

built in the open, replacing one formerly located indoors back of the electric furnaces. At an early date, the company will begin the construction of a pickling and annealing department for its cold-rolling department. The various changes and extensions will be completed early next year and the result will be virtual doubling of the company's capacity.

Part of Baldwin Toronto Plant Moved to London, Ontario

The old British Forgings plant on Ashbridges Bay, Toronto, Ont., recently owned by the Baldwin Canadian Steel Corporation, and which has been idle for several years has been sold to the London Rolling Mill Co., Ltd., Philip Street, London, Ont. A part of the building and equipment has been removed to London, where a large addition is under construction to the plant of the London Rolling Mill Co. While this portion of the Toronto plant of the Baldwin Canadian Steel Corporation has been disposed of, the Baldwin interests continue in possession of the tin plate department which will be kept intact, according to a statement issued by a local Baldwin official. All that has been disposed of is the old war plant.

Donner Petition Denied in Plant Equipment Case

WASHINGTON, Nov. 10.—The Court of Appeals of the District of Columbia last week denied the petition of the Donner Steel Co. for a writ of certiorari to transfer to the Supreme Court of the District of Columbia its controversy with the Interstate Commerce Commission growing out of the refusal of the commission to grant the company allowances for the use of its own equipment and services in "spotting" cars. The sum asked by the Donner company is \$498,000.

Railroad Brotherhoods Want War-Time Wages Restored

Grand lodge officers and general chairmen representing trainmen and conductors on Western railroads met Nov. 4 at the Morrison Hotel, Chicago, Ill., and approved demands for an increase in wage rates and improved working conditions. Agreements under which both train service brotherhoods are working expire Dec. 31. Details of the demands are being withheld pending their presentation to the railroads, but William G. Lee, head of the trainmen's brotherhood, asserted they involve a return to the wartime scale, or an increase of 7 per cent over the existing rates. Similar conferences, affecting Southern and Eastern railroads, will be held in Washington, Nov. 10, and in Cleveland Nov. 17. The brotherhoods indicated that proposals in their final form, affecting roads, East, West and South, will go to the railroad managements within 30 days.

The Ornamental Iron Survey Bureau, a listing bureau of the larger building jobs in and around Los Angeles, has been established by nine ornamental iron manufacturers of that city. Downtown offices are maintained by the bureau under the direction of W. Sample. The following concerns are associated in the bureau: Triangle Iron Works, Brombacher Iron Works, Friedman Iron Works, Walterhouse Mfg. Co. of Pasadena, City Ornamental Iron Works, Tressler Ornamental Iron Works, Architectural Iron Works, Jackson Iron Works, and the Lowith Iron Works.

The old Shoenberger Works, American Steel & Wire Co., Pittsburgh, soon will be only a memory, as the work of razing the old plant buildings is going on actively. The Pennsylvania Railroad bought the property and is now making ready for the construction of a large freight house to replace one that had to be pulled down in street widening near the road's Pittsburgh passenger terminal.

Machine for Slitting and Coiling Tubes

Designed for Handling Electrolytic Iron Deposited on a Mandrel
—Makes Coiled Strips

DURING the early fall THE IRON AGE described a process of making pure iron commercially in the form of tubes. This appeared Sept. 10. On page 677 reference was made to a slitting machine for cutting the tubes into strips and coiling those strips for shipment. Such a machine has been built and tested and is now en route to the Niagara Electrolytic Iron Co., Niagara Falls, N. Y., where it is to be used.

Essentially the machine depends upon a swiveled head, the angle of obliquity of which, with the axis of the bed, governs the width of strip to be cut from the tube. Within this swiveled head are a pair of cutters, together with a pair of pinch rolls and three bending rolls for drawing the strip through and coiling it. The coiling arbor is mounted atop the head.

From the nature of the electrolytic process, it is most convenient to recover the iron from the raw materials in the form of a tube deposited upon a mandrel. This tube, as the operation is performed at the Niagara plant, has an inside diameter of about 9½ in. and is 13 ft. 1½ in. long. Its thickness is a function of the time of deposition in the electrolytic bath and of the current density. For most tubes the thickness is between 0.06 and 0.13 in. If it is to be used in a tubular form, the tube may be drawn down to smaller diameter, or the ends may be rolled in and sealed in the formation of bottles for oxygen and other gases.

Unless it is to be used in tubular form, however, further work must be done upon the tube to give it a different form. For the great majority of uses to which the metal will be put, some different form is desirable. Strips are naturally the most convenient and, as they can be handled satisfactorily in a coil, the special machine was designed and built for transform-

ing the tubes into coiled strips. The slitting cut is spiral with respect to the surface of the tube.

Capacity of the Machine

Strips from 1½ to 12 in. in width may be made on this machine from the electrolytic iron tubes. Each strip will have the thickness of the tube from which it was made, the machine having capacity for handling anything up to ¾ in. The operating speed of the cutters is 60 ft. per min., while the time required to cut a tube into strip 5 in. wide and to coil the strip so cut is about 75 sec.

Much more time is needed to make the set-up, and to put the tube into position before being cut, than is absorbed in the cutting operation. This preliminary work takes 3 min. or more. Study is being made of means for reducing this non-productive time. The time required for cutting varies about inversely with the width of strip cut; thus, a 2½ in. strip would take about 2½ min. and a 10-in. strip about 35 or 40 sec. For narrow strip the machine is speeded up, resulting in a shorter period for cutting. The length of strip cut from a tube varies inversely with the width of the strip. It is about 78 ft. for 5-in. strip; 39 ft. for 10-in. strip and 195 ft. for 2-in. strip.

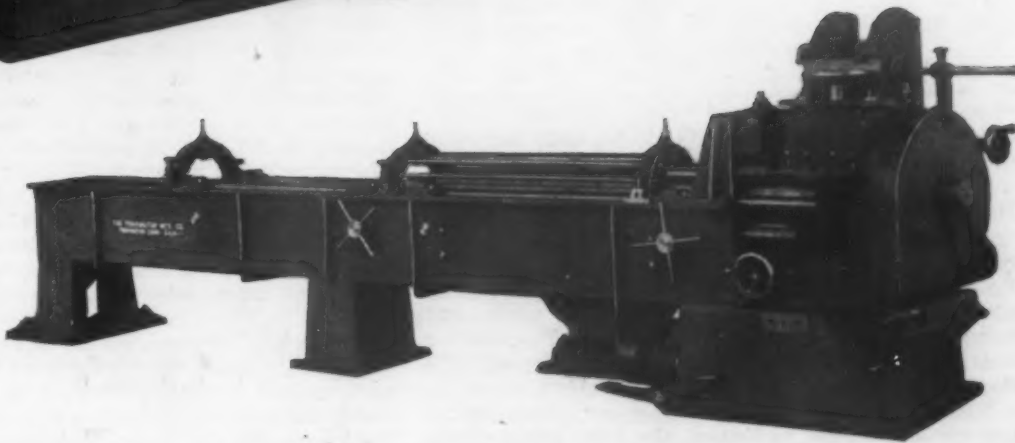
Operation of Machine

As will be noted from the photographs, the machine has a long bed with centering rests fitted with roller bearings, which hold the tube in position during the operation. Guide rollers support it during cutting. A preliminary nick is made with hacksaw, or with a small shearing device, to start the cut. This nick is brought into contact with the edges of the cutters and



Back of Machine (Left), with Tube Almost Entirely Converted into Strip. The coil of strip appears above swiveling slitter head at left end. The rear end of tube from which it was cut shows below operator's right arm

At Right Is Operating Side of the Machine, with Nearly Half a Tube Showing in the Carriage. Clutch control is by foot lever



the power is turned on. The tube rotates as it progresses along the bed of the machine, one revolution being made while it advances an amount equal to the width of the strip being cut. The first portion of the operation is aided by hand feeding, until a long enough portion of strip has been cut away from the tube to feed through a pair of pinch rolls, with axes approximately parallel to the axis of the tube.

From this point on the operation is positive, the pinch rolls pulling the strip through as fast as it is cut off and feeding it into the bending rolls, again with axes approximately parallel to the tube. These rolls coil the strip and carry it up to an arbor, around which it coils itself and by means of which the coil is later removed from the machine. While the tube has to rotate under the action of the cutter blades, and of the feed rolls which immediately precede the coiler, a considerable amount of restriction upon it is needed to keep the strip width between tolerance limits.

Adjustment of the slitting head unit to suit the shearing angle required for various widths of strip is accomplished, in unison with the coiler, by means of a segment worm wheel and worm, shown in photographs, under the end of the head. The worm is hand operated, a section of dial with a pointer being used to indicate the angular displacement. Gearing for operating the cutter heads, the pinch rolls and the bending rolls is contained within the casing, just above the worm.

Drive is by means of a 10-hp. General Electric motor with speed variable from 450 to 1800 r.p.m.,

and operating at 230 volts, d.c. The motor drives a clutch shaft through a Morse chain and sprocket and runs continuously while the machine is in operation. The operator throws the friction clutch in or out at will, to start or stop the movement of the machine, independently of the motor. For most work a speed of 200 r.p.m. on the clutch shaft is translated into 46 r.p.m. for the cutters.

Drive to the cutting head from the main clutch shaft, and to the pinch rolls and coiling rolls, is through a vertical shaft and two sets of miter gears. The vertical shaft axis coincides with the axis of the swiveling head. Other than the bevel gears mentioned, spur gearing is used throughout. The coiler has means of adjustment for diameter of coil, and the machine provides adjustment for varying diameters of tubes as well as for their being possibly out of round.

Both cutters are of Vulcan tool steel, although experiments are to be made with an alloy steel. They measure 5 in. in diameter, one being located inside the tube being slit, while the other is on the outside. The peripheral speed of the cutters is about 60 ft. per min. The pinch or feed rolls have a diameter of 4-16 in., while the coiling rolls are 3 1/4 in. in diameter.

Frank L. Estep of Perin & Marshall, 40 West Fortieth Street, New York, is credited with the idea of making the machine in this form to do its particular work. The detailed design and the building of the machine are the work of the Torrington Mfg. Co., Torrington, Conn. The machine as built weighs approximately 12,000 lb.

Electric Scraper Bucket for Foundry Use

A recent development in labor saving machinery is the appliance here illustrated, which is intended for use in foundries which employ sand cutters for preparing molding sand. Foundry floors may be cleaned quickly and the sand piled for cutting.

This device, classified as an electric scraper bucket, operates on the general principle used in some of the clean-up clam shell buckets employed for clean-up work in unloading coal and ore on the Great Lakes, except that instead of the opening and closing being accomplished entirely by ropes, it is accomplished partly by



Floor Area of 5 Ft. by 16 Ft. Is Cleaned Up by the Bucket in Approximately 20 Sec., Leaving the Foundry Sand in 4-Ft. Piles

ropes and partly by an electric closing unit contained within the bucket.

The body of the bucket consists of two small shells attached to long lever arms. These shells are drawn together by means of the electric closing unit and they are thrust apart in the opening movement by means of a set of toggle arms pivoted to the top of the closing unit. The toggle arms are actuated by ropes and sheaves on the block and tackle principle. The opening ropes are secured to a triangular shaped yoke which is attached directly to the hook of an overhead crane.

Not being intended for lifting nor transporting sand, the bucket has no bottom, the front edges of the shells being cut away so that when the bucket is closed

through the sand and raised it forms a neat pile. The gathering up of the sand on the floor and forming it into piles is managed entirely by the crane operator who controls the bucket both by the movement of his hook and by a controller mounted in the crane cage which controls the operation of the motor in the bucket through flexible feeder cable. The bucket is arranged so that it cannot dig down into the floor, the cutting edges being made to travel in a horizontal path, cleaning the floor without damaging it.

The bucket can be operated in connection with any standard overhead foundry crane, but there must be sufficient headroom for the height of the bucket up to and including the yoke on the end of the holding lines. In operation, this yoke is hooked to the crane hook. If special shaping of the pile is required, the crane hook is manipulated during the closing movement so that the depth of the cut will be varied as required.

A floor area 16 ft. by 5 ft. is cleaned up by the bucket in each cut, leaving the sand in piles approximately 4 ft. wide and 4 ft. high. The greatest height required for the bucket is approximately 14 ft. The bucket is said to make one cut in approximately 20 sec.

Fuel Waste Meter

To minimize loss of heat up the chimney, the temperature of escaping gases must be reduced as much as possible. It is even more necessary to increase CO₂ as much as may be. A new instrument, known as a waste meter, developed by the Uehling Instrument Co., Paterson, N. J., determines the waste of fuel, either in dollars, in B.t.u. or in percentage of the fuel burned. The meter has a pyrometer element and a CO₂ element, used in conjunction with a fire tube permanently located in the last pass of the boiler, or in a similar position. The changing vacuum between orifices in the instrument is transmitted to the temperature side of the waste meter, where it actuates a bell floating in mercury, to which is attached the recording pen. For actuating the CO₂ pen the Apex CO₂ meter is used.

There is an absence of moving parts, rubber connections and special glassware in the waste meter, which employs no chemical solutions. The records are continuous, the two diagrams being shown on the same circular chart.

Work Bench with Steel Legs and Drawer

Work benches of the type here illustrated have been added to the line of the Standard Pressed Steel Co., Jenkintown, Pa., the bench regularly manufactured being 48 in. long, 15 in. wide and 32½ in. high. It is available either with or without the steel drawer or vise. The vise, which may be of machinist's or cabinet

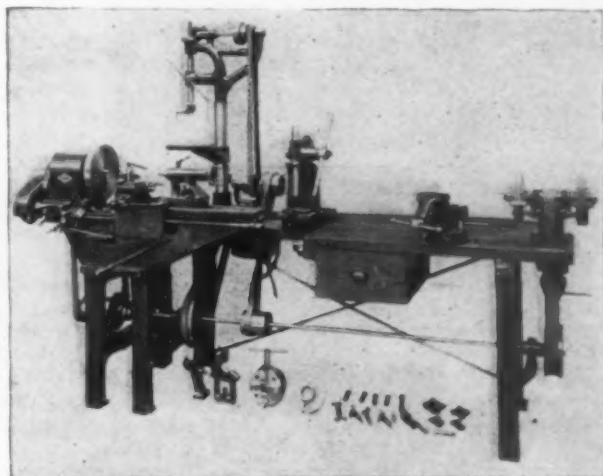


The Legs and Drawer Are of Steel

maker's type as specified, is furnished as an extra. The drawer is 14 in. by 15 in. by 5 in. and is fitted with a tray for small tools.

Combination Metal-Working Outfit

A combination machinists outfit, called the Metal-Worker, made up of a bench, lathe, drill press, arbor press, emery wheel stand and vise, and which is being marketed by the Artisan Mfg. Co., Cincinnati, is here illustrated. The top of the bench is free from shaft-



The Outfit Comprises a Lathe, Drill Press, Emery Wheel Stand, Arbor Press and Swivel Vise. The drive is by motor and line shaft, the motor being controlled by snap switch

ing, and the machinery is mounted so that the operator may work at three sides.

The top of the bench is of hard wood, is 7 ft. long and 30 in. wide, and is bolted to cast iron legs. A sliding drawer is provided for files and other tools. The two legs bolted at the left-end of the bench are stepped down in front, as shown, to receive an 11 in. by 24 in. lathe. The lathe has a 16 in. gap, and a quick-change

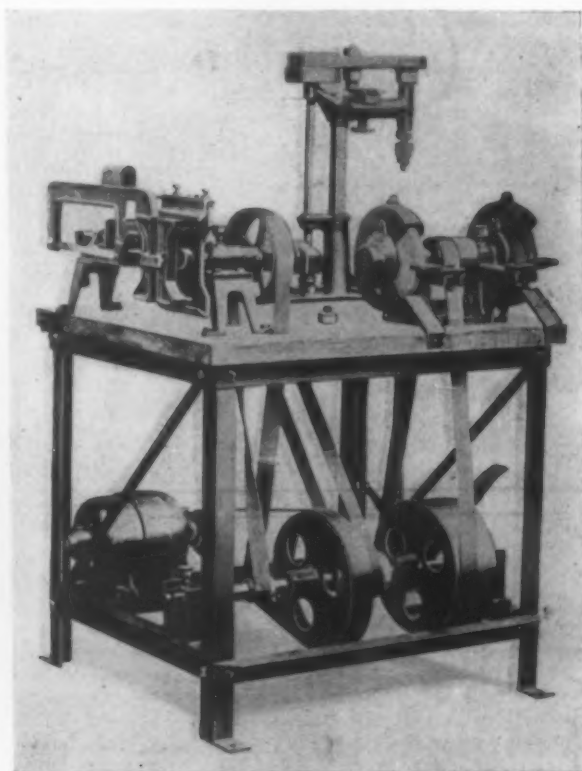
gear box with steel gears gives all standard threads from 8 to 224 inclusive. The 1½ in. pipe-threads may also be cut. It is equipped with a graduated compound-rest, set-over tailstock, six-speed headstock and a 1 5/16 in. diameter hole is provided in the spindle. The machine is driven by a friction-pulley mounted on the line-shaft which runs in self-aligning bearings, the bearings being mounted in three hangers bolted to the legs.

The drill-press is controlled through tight and loose pulleys from the line-shaft underneath. The capacity of the drill-press is 10 in., the distance from the spindle to the base being 16 in. The base has Tee-slots for clamping the work. The maximum distance between the adjustable table and the spindle is 10 in. and the travel of spindle 3½ in. The arbor press, which is bolted to the bench at the right-hand end of the lathe, takes diameters up to 8 in. and has a plunger movement of 8 in.

The swivel-base machinist's vise has 3½ in. jaws. The emery-wheel stand is equipped with two 6 in. x 1¼ in. wheels, fine and coarse, the emery-wheels being driven from a double-flanged pulley on the line-shaft. The line-shaft is driven by a ½ hp. motor which is started and stopped by the snap-switch at the left of the drawer.

Bench Outfit with Hack Saw, Grinder and Drill Press

A combination self-contained machine shop unit incorporating a power hack saw, grinder and drill press mounted on a 2-in. wood table with angle steel legs



Self-Contained Shop Unit, With Hack Saw, Grinder and Drill Press Mounted on a Wood Table

has been brought out by the Manley Mfg. Co., York, Pa.

The drive is by motor mounted as shown in the accompanying illustration. The shafting is supported by two self-centering bearings on the angle cross members and the pulleys, which are machined to produce a balanced drive, are pinned to this shaft. Each machine is individually controlled, the hack saw by means of an automatic clutch and the drill press and grinder by means of belt shifters operating in the usual way.

The capacity of the hack saw is 4 by 4 in., stock to be cut being held in a vise provided. An adjustable weight slides on an independent bar and permits proper positioning for various cuts and feeds. When the saw passes through the work, it trips a spring which disengages the clutch.

The grinder spindle is mounted on roller bearings and is equipped with 8 in. by 1 in. wheels, medium and fine. The drill press table is foot operated, permitting the use of both hands for holding the work. The machine will drill to the center of a 12½ in. circle. Four changes of speed are available.

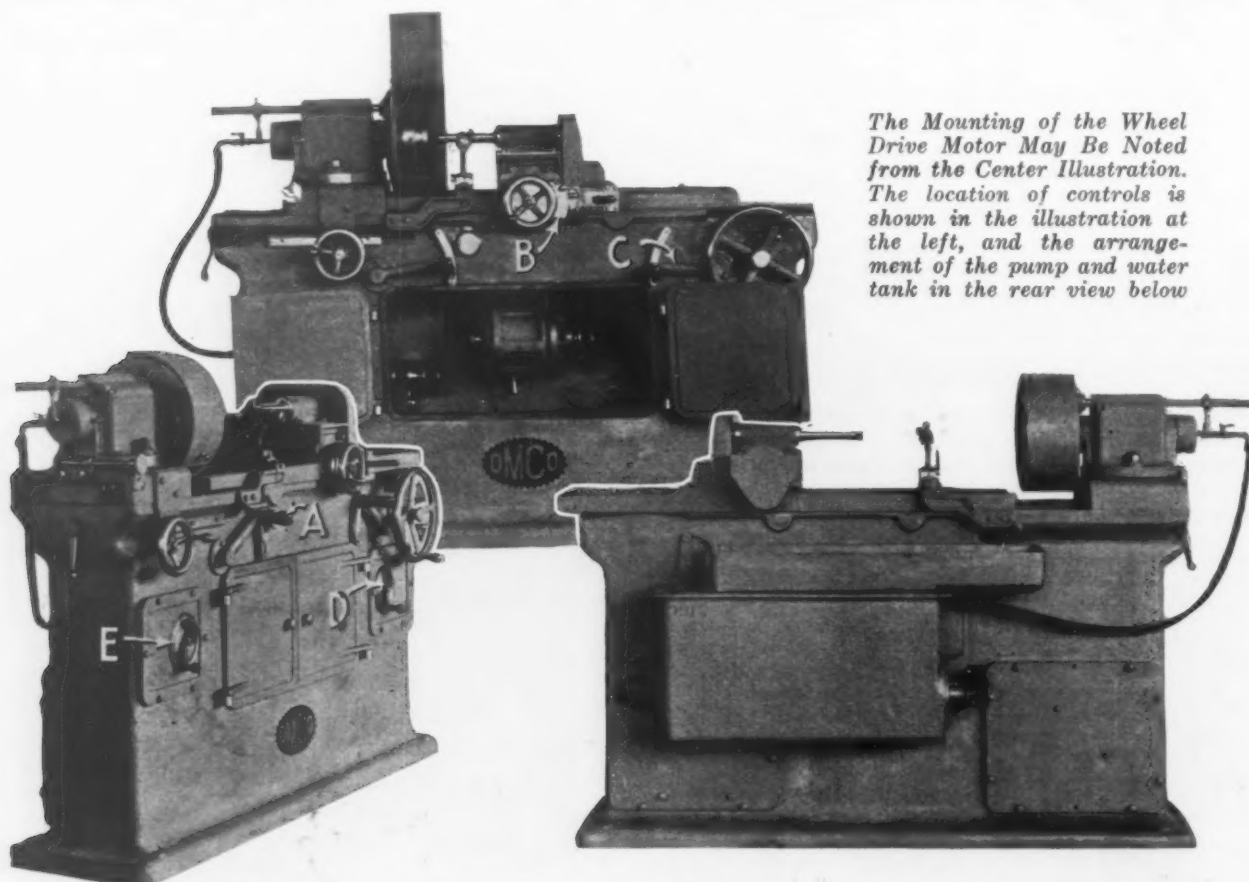
High Production Internal Grinder

Compact Machine with Driving Motors Inclosed in Base—Mounting of Wheel Drive Motor and Arrangement for Positive Reversal of Carriage Traverse Are Features

Flexibility, high accuracy and compactness are general features claimed for the self-contained grinding machine here illustrated, which is known as the Omco and is being placed on the market by the Oakmont Mfg. Co., Oakmont, Delaware County, Pa. Safety features to protect both the operator and the machine from injury have been incorporated. The machine is designed with a minimum number of parts, all units

adjusting for stretch and a device is provided for maintaining the belt tension desired. The work-head spindle is started and stopped by means of lever A, no friction clutch being used in this mechanism. The spindle is of double-taper type with adjustment for wear, and has a large hole for collet tube and water pipe.

The grinding wheel carriage moves on flat and Vee ways, which remain covered regardless of the position



The Mounting of the Wheel Drive Motor May Be Noted from the Center Illustration. The location of controls is shown in the illustration at the left, and the arrangement of the pump and water tank in the rear view below

being accessible and conveniently removed from the base.

The machine will swing 12 in. inside of the water guard and grind holes to a depth of 10 in., holes 12 in. in diameter requiring removal of the water guard. Holes from 5/32 to 12 in. are said to be held to 0.0002 in. under production conditions and on shoulder work, either double or single, accuracy of 0.0005 in. is claimed.

The bed, work head and wheel carriage are of rigid design. Three motors are employed to drive the machine, one for the headstock, one for wheel head and one for the traverse drive. These motors being small tend to minimize vibration and, being inclosed in the bed, are protected from moisture and grit. The one driving the work head by belt is of variable speed type and is mounted directly beneath the head. There are 26 work-head spindle speeds, ranging from 20 to 180 r.p.m., speed changes being obtained by the rheostat E on the front of the machine. The belts are self-

of the carriage and are lubricated by rollers revolving in oil pockets. All oil pockets can be filled with the carriage in one fixed position. The method of mounting the wheel-drive motor, which is suspended from the wheel carriage as shown in the front view herewith, is a feature. This arrangement of the motor below the ways tends to distribute weight equally above and below the ways which, it is claimed, results in greater precision in starting or stopping the wheel traverse at predetermined points.

The wheel drive belt is self adjusting for stretch and has a device for constant tension adjustment. The wheel head is of combination bronze and ball bearing type. Convenient adjustment may be made while running, and attention to lubrication is required but twice daily. Wear of the ball bearings is taken up automatically and the ball bearings are arranged to take belt vibration and shock, rotary motion only being transmitted to the end of the grinding spindle.

Mounting of the wheel head on the upper of two cross slides is a feature, the upper slide taking the cross feed and having only a short movement. This is stressed as necessitating the use of a wheel of proper size for a given job and eliminates waste of time due to use of too small a wheel. The lower of the two slides provided permits quick return motion when setting the machine for taper or step work.

The wheel feed is arranged for operation by hand-wheel, or automatically at each end of the carriage travel. It will also feed straight into the work when the carriage is not traversing. The feed dial *B* is graduated in 0.001 in., these graduations being approximately $\frac{1}{4}$ in. apart and subdivided in turn into five parts to read conveniently in increments of 0.0002 in. Provision for varying the feed by 0.0002 in. from maximum to zero, by the downward movement of the graduated sector type lever located immediately at right of the hand feed wheel, is claimed to be distinctive.

A feature especially stressed by the manufacturers is the arrangement of the carriage traverse. A separate variable-speed motor is employed in this drive, which is engaged and disengaged by a positive clutch operated by the lever *C*. The hand traverse wheel is engaged when the power traverse is disengaged and vice versa. There are 13 traverse speeds, ranging from 20 to 60 in. per min., speed changes being obtained through the rheostat *D*.

Positive reversal of traverse to 0.0005 in. regardless of any change of traverse speed is claimed. Tendency to throw the carriage out of alignment is said to be eliminated because the carriage is stopped at a point

in line horizontally and vertically with its center of gravity and also because the carriage is driven at its center of gravity. Another common tendency for shock is said to be eliminated because no revolving part of the traverse mechanism changes direction of rotation, there being no backlash to take up. The reversing clutch never operates at more than 30 r.p.m.

Stopping of the carriage automatically throws the reverse mechanism. If a tool or other object becomes wedged between a fixed part of the machine and the moving carriage, the carriage will automatically reverse. This prevents damage, without throwing the machine out of adjustment, and the carriage will return again to its positive stop when the tool or other object is removed. In addition to keeping down repair costs, this feature is pointed out as of advantage in the grinding of blind holes or shoulder work. Fillets can be used in place of clearance cuts and shoulders can be positively and accurately gaged by the carriage stops. These stops are graduated to read in 0.001 in. and the traverse can be lengthened at either end to take care of side wear of the wheel, or shortened at will.

The coolant pump and tank are integral and are mounted at the rear as shown in the rear view of the machine. The tank is provided with three settling compartments. The pump is of the paddle type and is driven from the workhead drive countershaft, the water supply being started and stopped simultaneously with starting and stopping of the work head.

The length of the base of the machine is 70 $\frac{1}{2}$ in., and the width 18 in., the operating floor space occupied being 29 in. by 78 in. The weight is 2400 lb.

IMPROVES SCREW MACHINE

Five-Spindle Automatic Produces Brass Pieces at Rate of One Per Second

Improvements permitting increased speed of operation, and therefore larger output, have been incorporated in a new model five-spindle automatic screw machine recently placed on the market by the Davenport Machine Tool Co., Inc., Rochester, N. Y. The machine is called the "one second multiple-spindle screw machine," because a variety of brass pieces may be produced at that rate.

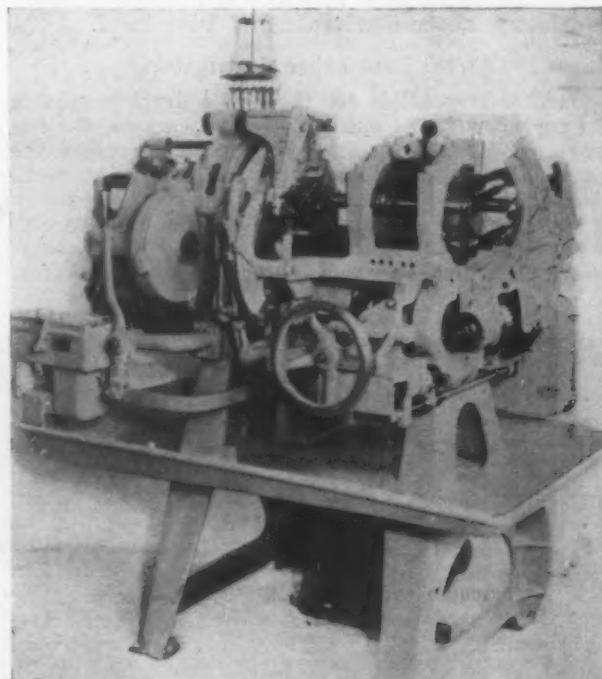
In general the operation of the new machine follows that of previous models. The principal changes in design relate to the threading spindle drive, the starting clutch, work-head indexing and locking mechanisms, method of opening and closing the work-spindle chucks, and the stock feeding arrangement. The method of obtaining increased production is outlined briefly in the following paragraphs taken from the company's letter on the subject.

"Some years ago when the first machine made 30 pieces a minute or one piece in 2 sec. it was thought to be very large production. With the increasing demands of modern industry it has been necessary to increase production and this has been brought about by changing the mechanism for indexing the revolving head or spindle carrier, this being now accomplished with the well-known Geneva crank and slotted disk. While the indexing is being done the chuck is opened, the stock is fed forward and the chuck closed, the time taken being $\frac{2}{5}$ sec. The time required for withdrawing the tools from the work and getting them up into cutting position is $\frac{1}{5}$ sec., so that the total non-productive time on any job is only about $\frac{3}{4}$ sec. This leaves the other half second for the cutting tools to do their work, and with the type of cam employed, which is milled accurately to the correct rise and with the adjustments to vary the distance the tool is fed, each tool can be cutting the entire half second, utilizing every revolution of the spindle.

"The time required to machine a piece of work is that taken for the longest operation. With the system of cams and adjustments provided on this machine all tools are at work during this period. Cutting edges last longer than if all tools were fed together on one slide and produce a better finish on the work. For pieces requiring more than 1 sec. the cam shaft is ar-

ranged to revolve at two speeds, one at the rate of 1 sec. for the complete revolution, and the other, at a slower speed, which is obtained by a system of change gears. The time taken for the tools to do their work may be as slow as 20 seconds.

"In computing the time to make a piece, the proper



Davenport Five-Spindle Automatic Screw Machine. The threading mechanism is not shown in this view

speed of the spindle is selected for the hardest part of the work and the feed per revolution for the hardest operation is taken, and from these two figures the revolutions for the longest operation are obtained. From a table furnished the time in seconds is noted and the change gears selected accordingly, then $\frac{1}{4}$ sec. is added for the time lost in indexing the revolving head, etc., and this makes the total time for the piece."

New Wage Policy of Federation Implies One-Sided Profit-Sharing Agreement

Will Unions Be Willing to Accept Wage Reductions When Industry's Income Declines as Readily as They Demand an Increase When It Advances?

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

THE recently announced policy of the American Federation of Labor with reference to wages is of the utmost importance. That policy seems to be that organized labor will seek to advance wages in proportion to the growth of business earnings, the aim being to secure for labor a larger share in the growing prosperity of the country.

It is economically sound that labor should share in industrial earnings in proportion to the contribution which labor makes to such earnings. It is also economically sound that labor should receive an increase when the production of values increases on account of increased labor efficiency. There is danger, however, that the demands of labor may exceed the limitations of contribution by labor. In any case, it would be equally sound that labor should accept reductions in wages when the productivity of industry declines.

Wages in the long run can be paid only from the product of labor. If labor takes from capital or business enterprises what those factors contribute, it will inevitably curtail their activities and result in injury to industry, to the disadvantage of labor itself.

What Does Labor Contribute?

WHO is responsible for the recent developments in superpower, the opening of new markets, the improvement of business organization and processes, the mass of inventions and business plans, which underlie so much of the prosperity of the country? Certainly it would be difficult to attribute any great proportion of these things to labor. They are contributed by business leaders and are motivated by interest and profits.

If interest and profits are reduced the improvements mentioned will cease to be developed.

Logically carried out, the new policy of organized labor would lead to wage reductions during periods of depression when interest and profits decline. Are the unions willing to accept this corollary of their proposition? In reality the proposal implies a sort of profit-sharing arrangement and would involve the assumption of the risks of business enterprises by wage earners.

Railroads a Good Example

DURING the past week it has been reported that certain railroad brotherhoods are planning to demand a return to high war-time wage levels. This raises the question, are the laborers responsible for the gains in earnings which the railroads have been showing? They did not contribute the capital which went into the additions and betterments to road and equipment. Nor did they function in the managerial decisions which directed the application of the investment. They have rather hindered than helped in carrying out the plans for improvement and economical administration of railroad operations.

In industries in which the earnings of capital and profits are reasonable, higher wages must mean higher prices to the consumer in the long run. In industries in which profits are unreasonable, as may be the case in the field of monopoly, it is not a sound policy to maintain prices at unreasonable levels and allow laborers to share in the undue profits. The interests of the consumer, which are in the long run the interests of society, require reasonable prices, which mean that labor

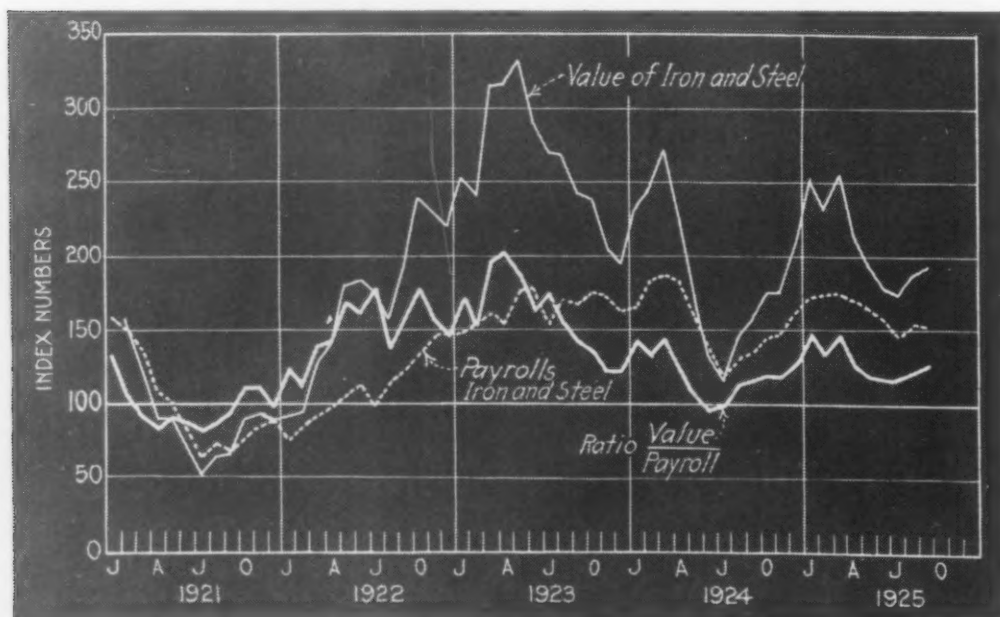


Fig. 1—The Ratio of Value of Iron and Steel Products Manufactured to Total Payrolls Involved in Production Has Shown a Steady Increase Since the Middle of the Summer

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Steel cast to exact size in permanent molds.—New "plastic process" for casting of cutting tools, intricate molds, dies, etc., within 0.002 in. of exact size.—Page 1310.

Sharp gain in unfilled orders.—Steel Corporation's total at Oct. 31, 4,109,183 tons, increase of 391,886 tons, largest monthly gain since December.—Page 1328.

Germany has desire to buy American machinery but lacks cash.—No prospect for early improvement in weakened market for American machinery. Long time credits risky.—Page 1357.

Brass goods maker cuts ingot metal cost half cent a pound.—Elimination of minor differences in alloy specifications is responsible.—Page 1326.

Welding saves \$2,400 by repairing 23-ton pinion.—Replacement costs cut appreciably in steel mills by welding broken or worn parts.—Page 1307.

American exports high.—First nine months of 1925 show gain of 383 million dollars over same period of 1924.—Page 1326.

No parallelism in movement of prices of various metals.—Zinc, tin and lead far above copper, iron and steel prices compared with 10-yr. pre-war averages.—Page 1328.

Labor eager to share in larger profits.—Economist questions whether wage reductions will be accepted when profits lessen.—Page 1322.

Will 1925 establish a new record in steel production?—If output continues at October rate for remainder of year, the record of 1917 will be beaten.—Page 1327.

New electric furnace is rapid producer.—45-min. from cold crucible to finished pour is record on chrome-tungsten steel or nickel alloy in small quantities.—Page 1312.

Why wait for government to suggest simplification?—Large savings await almost every manufacturer who investigates possibilities in his own establishment.—Page 1326.

Pig iron average price again advances.—Now \$21.54 per ton, highest since March.—Page 1337.

Will cut track maintenance cost one-sixth.—New standard 39-ft. rail will reduce number of rail joints 16 per cent, saving railroads considerable money.—Page 1314.

Gain of 7.3 per cent in steel output.—October daily production 144,183 tons, highest since March.—Page 1315.

Elapsed pouring time affects quality of steel ingots.—"Hot" steel can be poured slower than "cold" to maintain proper relationship between pouring time and temperature.—Page 1305.

German imports exceed exports by 50 per cent.—Unfavorable trade balance in first year of Dawes plan.—Page 1334.

The Iron Age, November 12, 1925

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The Iron Age and Its Readers

IT is not amiss to refer to the satisfaction THE IRON AGE's readers may have in the editorial comments on business conditions that have been put before them in the past year. In an advance estimate of the course of steel production for the year it was said that 1925 would be more likely to resemble 1923 than 1924. The fact is, as indicated elsewhere in this issue, that 1925 is likely to come very close to the steel output of 1923 (second among our record years) and may even exceed the 43,619,000 tons of 1917.

In this connection reference may be made to THE IRON AGE forecast of the continuance of the remarkable movement in stocks; to the prediction made a few months ago that the demand for iron and steel products would presently swell, following the non-ferrous metals; also to the suggestion to galvanizers, some weeks back, that the price for zinc was likely to go to higher levels.

Fig. 2—Earnings of Iron and Steel Labor, Like Those of General Labor, Have Declined Somewhat: Consequently, With Living Costs About the Same, "Real" Wages Have Come Down a Little

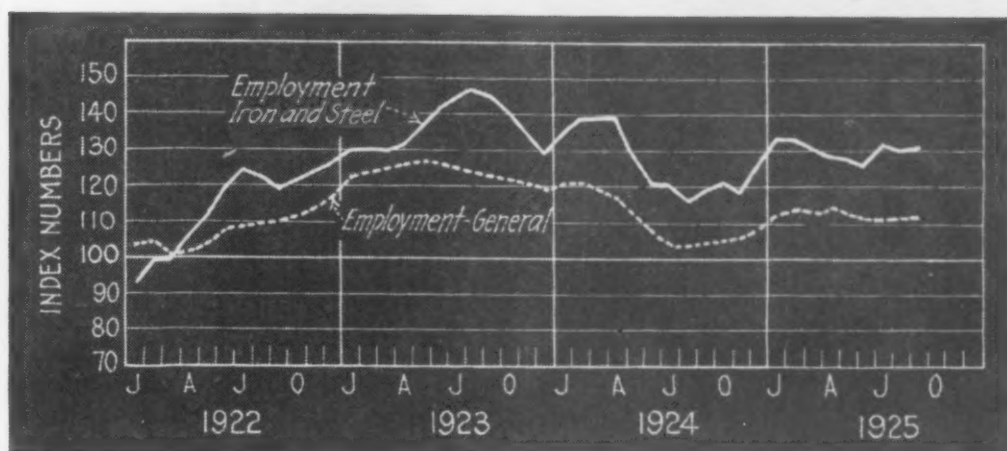
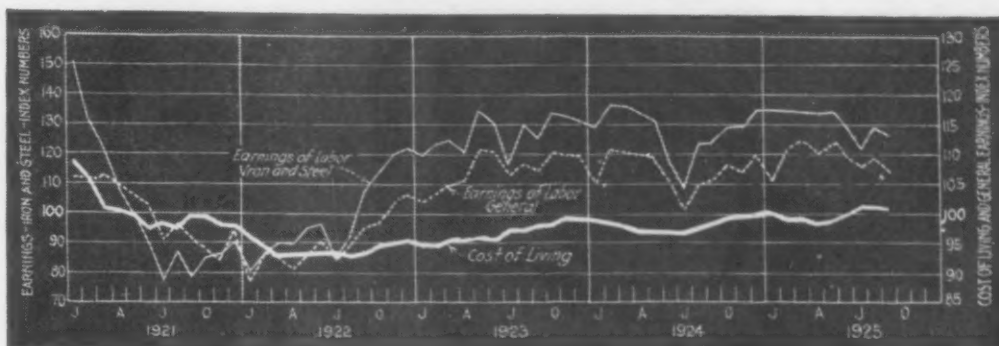


Fig. 3—Iron and Steel Employment Continues Close to the High Mark for the Year and Well Above Last Year at This Time

and capital and business enterprises should each and all receive rewards in proportion to their several contributions—no less and no more.

Share in Labor-Saving Devices

IT is estimated that the quantity of iron and steel produced per man per day continued to increase during September. Probably, also, the output per man-hour has recently gained.

This increased output is partly due to labor-saving devices. To the extent that the increase is permanent, and to the extent that it is the skill of the labor employed which makes possible the use of the labor-saving equipment, the laborers employed might argue for additional compensation. But to the extent that such devices merely save labor by substituting capital and business enterprise therefor, real economic progress would be retarded by taking from interest and profits and giving to wages. Also, possible future decreases in output must be considered.

The value of iron and steel produced in September, estimated at current prices, increased considerably, though not so much as in the preceding month. On the other hand, total payrolls in the industry were slightly lower (on account of Labor Day). Thus the ratio of value produced to labor expense increased. That is, the trend of "real" wages was probably upward (see Fig. 2).

The September showing was about the average of the period since January, 1924—probably not far from the average of the last five years.

Average of All Wages Lower

BOTH the earnings of labor and their cost of living decreased in September (see Fig. 2). According to the Bureau of Labor Statistics, the average weekly earnings in general manufacturing industry declined 2.1 per cent, and the same decline occurred in the iron and steel industry. The National Industrial Conference Board's index of living costs was about 1 per cent lower.

It must be remembered, however, that the Labor Day holiday came later this year and affected earnings figures materially. We may therefore doubt if any real decrease in earnings occurred. In 1923 there was a similar decline in September earnings, followed by complete recovery in October.

That the rate of earnings by laborers was probably little changed in September is indicated by the fact that employment held up well and that no material wage changes were announced.

As to general employment (see Fig. 3) the facts are that (1) there was an increase of 1.5 per cent in manufacturing industries in general, and (2) an increase of 0.6 per cent in the iron and steel industry. These increases are almost exactly the same as the usual or normal seasonal variation, and accordingly it may be said that the real trend of employment was unchanged. The last few months have been remarkably stable.

There were wage rate increases in 66 manufacturing establishments throughout the country and decreases in nine establishments. "No general significance can be attached to any of these wage changes," says the Bureau of Labor.

The Iron Age, November 12, 1925

Crucible Steel Co. Improving Park Works at Pittsburgh

The Crucible Steel Co. of America is engaged in modernizing its Park Works. Not only are present mill buildings to be replaced by new structures, but the company is substituting electric for steam power for driving the mills, which means alterations in existing mills to accommodate the change. Contract for the steel framing for the new buildings has been placed with the American Bridge Co.

A new 22-in. billet mill is to be installed, and the

blooming mill is to be rebuilt. The Mackintosh-Hemp-hill Co., Pittsburgh, will furnish a manipulator and delivery and entering tables for the blooming mill, and a 9-in. roll train and an 1800-hp. drive for the billet mill. Traveling tables for the latter mill will be furnished by the Morgan Engineering Co. and other tables and a shear by the Birdsboro Foundry & Machine Co. The mill train and saws will be furnished by the United Engineering & Foundry Co., Pittsburgh. The Westinghouse Electric & Mfg. Co. has been given an order for a 500-hp. motor, and the General Electric Co. will supply an 1800-hp. and an 800-hp. motor and a 2100-kw. 3-machine, synchronous motor-generator set.

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Standardization Begins at Home

AT intervals the business world adopts a new catch phrase. Originally it may have a definite and precise meaning, but used by everybody it rapidly expands to mean almost anything, and therefore little or nothing in particular. "Scientific management" was such a catch term of yesterday, even now become old-fashioned. "Standardization" bids fair to replace it.

Individualists do not like standardization. They say it interferes with progress. If every one is agreed that a certain screw thread is best, how can screws ever be improved? For, they say, it is inconceivable that anything represents the ultimate of perfection toward which the idealist strives.

But such standardization as sponsored by our tireless Secretary of Commerce has many advantages to the manufacturer. True, it might cost a brick maker a little money to alter his dies and machinery to produce standardized shapes; but this cost will be quickly recovered in the reduced expense of stocking and cataloging many diverse sizes against expected orders.

In like manner, metal manufacturers may often, to great advantage, reduce the variations in their own production schedules. This without stifling any initiative in their organization—in fact, quite the opposite; for the investigation necessary to determine which of the variants is best fitted to survive is in itself a real tonic.

Such opportunities are especially ripe in brass and bronze foundries. Ask almost any foundry of moderate size, and the usual answer will be that two or three dozen alloys may be made at intervals during the month's production. We have in mind a plant at which no less than 250 different analyses were cast during the year. No wonder a catalog of alloys is a bulky affair and that the small variations in composition become meaningless to the purchaser.

Obviously, any shop would be better off with fewer alloys in production. In the first place, the labor of proportioning the compound would be saved. In the second place, the segregation of sprues, risers and scrap castings would be saved. Next, the proportion of defectives would be lowered, because each alloy involves its special molding and

pouring problems, and it is hard enough to bring these under control for a single alloy, let alone dozens.

Even in plants manufacturing a single line of product, standardization of alloys may well be effected. One company manufacturing plumbing fixtures found it was working on sixteen alloys. A brief period of experiment showed that five of these alloys are all that are really necessary. In fact, it has been possible to produce over 90 per cent of the output in just two.

With two alloys a successful effort at technical control is possible. It is far more feasible, naturally, to study the possibilities of each of two alloys than of sixteen. It has turned out that minor modifications in content have enabled the manager to secure ingot metal at a half cent a pound below the costs in the old days of insistence on traditional chemical compositions. And this at no sacrifice whatever of quality, or of ease in subsequent fabricating steps.

In few words, what it amounts to is this: It is not necessary to wait for some national organization with many members to decide what should be done. Any manager can look into his own shop for chances of simplification.

Such standardization pays.

Our Manufactured Exports Grow

EVIDENCE is accumulating of the ability of our manufacturers to maintain their position in foreign markets, despite the high level of American wages and of raw material prices. In the fiscal year ended June 30 exports of American products were 29 per cent greater than for the same period three years earlier, when the country was operating under the lower duties of the Underwood tariff law. Imports meantime had increased 46.6 per cent, but the excess of exports over imports had remained well over \$1,000,000,000, as in the earlier year.

Comparing the first nine months of 1925 with the corresponding period of 1924, our exports have gained \$383,000,000, while imports have gained \$409,000,000. The excess of total exports over total

imports was \$424,000,000 this year and \$454,000,000 last year for the nine-months' period.

Finished manufactures show a far greater excess of exports, the balance of trade this year having been \$792,000,000 against \$651,000,000 last year. In all the other classifications—crude materials, foodstuffs, semi-manufactured articles, etc.—imports have exceeded exports, except for larger outgoing shipments of manufactured foodstuffs. Finished manufactures form the greatest group in the entire export list, representing about 40 per cent of the total in each of the two years, but only 20 per cent of the smaller total of imports.

Such exhibits run counter to the arguments that a protective tariff (1) discourages imports and (2) curtails exports by reason of the disinclination of other countries to buy where they cannot sell. Some of our heaviest sales have been made to Great Britain and Germany, our chief competitors for the world's trade in manufactured goods. Other forces are at work than those which so long have been cataloged in anti-tariff preachments.

Near a Steel Record in 1925

THREE times out of five July has been the low month of the year in steel ingot production, in 1921, 1924 and 1925. Neither the case of 1920, when furnace and mill operations were entirely a matter of transportation conditions, nor that of the strike year 1919, is to be considered in connection with the question whether steel production is subject to seasonal variation. By the law of chances, July should be the low month only once in twelve. Technically, July has been the low month seven times as often as chance would dictate.

Before the war, July and August were usually low months in pig iron and therefore steel production. Of late, production from month to month has depended upon buyers. Some evidence has accumulated to indicate that buyers are disposed to take hold with particular freedom about Jan. 1, causing especially heavy production in March and April, from which a reaction naturally occurs.

With last month's ingot production 22 per cent above that of July, this year runs in accordance with the precedents of 1921 and 1924 as to increasing production after July, but is novel in the highness of the rate of production, for last month's production was by far the highest in any October since the last October of the war. What does this mean? It is conceivable that a bulge is coming earlier than usual, not waiting for next spring, or it may be that this foreshadows a period of months of heavier and better sustained production than we have had between the war and the present time.

In other words, this matter of steel production is on the verge of very interesting developments, and the statistics to date are therefore worth special study. Not the least interesting point is what the present calendar year's production is going to be, for the calendar year record is threatened. Ingot production in October is computed at about 3,892,946 tons, on the basis of precise returns from about 95 per cent of the capacity, indicating a daily rate of 144,183 tons, which is 7.5 per cent

over the September rate and 22 per cent over the July rate. The computed production for the year through October is 36,303,634 tons, and a continuance of the October rate for the remaining fifty-one working days of the year would make the total 43,656,967 tons.

There is a probable error, as the returns are not complete, and production may swing one way or the other. The computation is made in precise figures because the result comes so close to the record, being 37,767 tons over 1917 and 171,302 tons over 1923, the next best year. Merely a 15 per cent slowing down in the last fortnight of the year, however, would mean a loss of 259,524 tons and put 1925 in third place. Production since the record year has been as follows:

Steel Ingot Production, Gross Tons			
1917.....	43,619,200	1922.....	34,568,418
1918.....	43,051,022	1923.....	43,485,665
1919.....	33,694,795	1924.....	36,811,157
1920.....	40,881,392	1925.....	*43,656,967
1921.....	19,224,084		

*Assumed.

Production in October was at a rate of 44,840,000 tons per annum, according to the American Iron and Steel Institute reckoning. If it is thought that a much higher rate is a possibility in the next few months, it follows that the October rate was well below capacity.

	Ingot Production, Percentage of Capacity	
	At 54 Million Tons	At 50 Million Tons
January	90	97
February	90	97
March	93	100.45
April	79	86
May	77	83
June	71	77
July	68	74
August	76	82
September	77	84
October	83	90

The above table shows production in the ten months of this year in percentage, first of the 54,000,000 tons assumed nearly two years ago by THE IRON AGE as the practical capacity, and second of the 50,000,000 tons recently proposed by Chairman Topping of the Republic Iron & Steel Co.

Copper and Iron Are Cheap

THERE has just been a sharp advance in the galvanized sheet market, about twice as much as in black sheets, and due to a stiff advance in the zinc market. The tin plate price for the new season is to be developed within a few weeks, and there is talk in the trade that there should be an advance, because tin has been going higher.

The tin and zinc advances, together with that in lead, direct attention to the behavior of these metals as contrasted with prices of copper, pig iron and finished steel. There is a remarkable divergence. Copper is very cheap and the iron products are relatively cheap.

The Bureau of Labor's index numbers of commodity prices as a whole are based upon 1913 prices as 100. In metals the custom has been to make comparison with the ten-year period ending with 1913 rather than with the single year 1913, in view of material changes from year to year. It chances, however, that in the case of pig iron and finished steel it makes little difference whether the ten-year period or the single year 1913 is taken. The Bureau of Labor's latest index number, announced

at 159.7, on the 1913 basis, becomes 171 when referred to the ten-year average, 1904 to 1913, this representing a 71 per cent increase. Comparisons of the metals are arranged in order in the table below, the pig iron and finished steel being computed from THE IRON AGE composites:

Present Prices in Relation to Average of 1904-1913

All commodities	+71
Copper	-5
Pig iron	+32
Finished steel	+44
Zinc	+58
Tin	+72
Lead	+110

All these commodities are important. Even tin, a relatively small tonnage proposition, represents at 64 cents, on the basis of United States deliveries in the first ten months of this year, an outlay of more than \$110,000,000 per annum. The above comparison strongly illustrates the point that "the purchasing power of the dollar" is no more than a convention or an average. It means almost nothing applied to a given commodity. Many forces have been at work in the case of any individual commodity, influencing the price.

Of course the amount of sales competition varies with different commodities, but the sales competition depends largely on the supplies available, not so much the amount actually produced as the resources available for production. It may appear that cost of manufacture is by far the dominant factor, but cost of manufacture has a way of following the mineral resources involved. If a country starts with a large supply of one kind of ore in the ground and a small supply of another kind, methods of manufacture are likely to improve more in the first case than in the second.

Copper, being below its pre-war level, is particularly cheap. Pig iron at 32 per cent above and finished steel products at 44 per cent above are quite cheap when commodities as a whole are 71 per cent above. While zinc is relatively higher than steel products, it is cheap relative to all commodities. Lead is very high priced. It is customary to criticize tin because it is in control of foreigners, but when the foreigners are charging us only a little stiffer price for tin than we are charging ourselves for commodities as a whole, there is not much reason beyond a sentimental one for singling them out.

LOOKING to the possibility of abandoning the manufacture of the steam type of cast iron heating radiator, tests have been started by the Research Laboratory of the American Society of Heating and Ventilating Engineers at the U. S. Bureau of Mines experiment station at Pittsburgh. The investigation is one result of the efforts of the Department of Commerce to arouse interest in simplification and the elimination of waste in manufacture. If it is found that the steam type of radiator is no longer of special engineering importance, it is not difficult to comprehend the economic bearing of an authoritative statement to that effect, presumably leaving only the one general class to be made, the hot-water type (having connections between the sections at both top and bottom). Simplification and standardization have made a deep impression on the consciousness of the business and manufacturing world in the truly short

time since the head of the Department of Commerce made them watchwords.

WORLD demand for galvanized sheets has been larger in 1925 than in any other year since the war. The combined exports of British and American mills to Oct. 1 averaged 71,700 tons per month. This compares with 63,000 tons in 1924, with 43,200 tons per month in 1920, and is nearly abreast of the 73,000-ton average of 1913. The gain this year is due mainly to an expansion of nearly 50 per cent in American sales since last year, the British increase being about 8 per cent. Shipments to Argentina on the 39,000-ton Government order for the campaign against locusts have been the chief factor in the American gain. Accompanying the export movement in coated sheets has been a sharp increase in exports of American zinc, chiefly to England, with a continuing rise in prices for the metal here. Prime Western zinc has reached this week the highest point for the year, which is more than 50 per cent above the average for 1913.

RETURNING lately from Europe and a study of the automobile industry abroad, the head of a large American motor car company, producing a popular and moderate-priced car, predicted that the car of the future would be a light one capable of a speed of 90 miles an hour. He declared this would be possible not only because of the great stride in design and in carbureter improvement, but also because of new steels. The superiority of the car of today to the earlier types, in weight, speed and efficiency, due in large measure to heat-treated steels, brings the prediction quite within the range of probability. Automobile engineers are being constantly offered new or improved materials, notably better heat-treated steels and light non-ferrous alloys of striking properties. It may almost be said that as the highest type automobile of today would not have been possible without the metallurgical progress of the past decade, the car that leads in 1935 will itself fairly register the advance of the new decade in the making and treating of steel, cast iron and the non-ferrous metals.

Large Increase in Steel Corporation's Unfilled Orders

Unfilled orders on the books of the United States Steel Corporation as of Oct. 31 aggregated 4,109,183 tons—an increase of 391,886 tons over those which remained unfilled on Sept. 30. This compares with an increase of 204,494 tons in September, the first one since February. There had been decreases of from 421,207 tons in March to 26,664 tons in August. A year ago the unfilled business was 3,525,270 tons, or 583,913 tons less than for Oct. 31, this year. Following is the unfilled tonnage as reported by months, beginning with January, 1923.

	1925	1924	1923
Jan. 31.....	5,037,323	4,798,429	6,910,776
Feb. 28.....	5,284,771	4,912,901	7,283,989
March 31.....	4,863,564	4,782,807	7,403,332
April 30.....	4,446,568	4,208,447	7,288,509
May 31.....	4,049,800	3,628,089	6,981,351
June 30.....	3,710,458	3,262,505	6,386,261
July 31.....	3,539,467	3,187,072	5,910,763
Aug. 31.....	3,512,803	3,289,577	5,414,663
Sept. 30.....	3,717,297	3,473,780	5,035,750
Oct. 31.....	4,109,183	3,525,270	4,672,825
Nov. 30.....	.....	4,031,969	4,368,584
Dec. 31.....	.....	4,816,676	4,445,339

The high record in unfilled orders was 12,183,083 tons, at the close of April, 1917. The lowest was 2,674,757 tons, on Dec. 31, 1910.

Apply Mileage Scale in New Cases

Examiners in Two Reports Follow Principles Outlined by
Commission in Jones & Laughlin Case

WASHINGTON, Nov. 10.—Application of the scale of rates on iron and steel products outlined by the Interstate Commerce Commission in the Jones & Laughlin Steel Corporation case is proposed in two tentative reports made public yesterday. One report was prepared by Examiner W. M. Cheseldine and covers shipments of bar iron, angle bars and channel bars, in carloads, from Knoxville, Tenn., to destinations on the Louisville & Nashville Railroad in Kentucky and Tennessee, to the Ohio and Mississippi River crossings, and points in Central Freight Association territory. The existing rates, attacked by the Knoxville Iron Co., were found unreasonable in some instances and reasonable rates were prescribed, but reparation and fourth section relief were denied. The report also covered a complaint of the Knoxville Iron Co. against the Baltimore & Ohio Railroad, in which attack was made on rates for the same products to common points in Kentucky and Tennessee, the river crossings and destinations in central territory. The other report was prepared by Examiner Burton Fuller and recommended that the commission find unreasonable and unduly prejudicial, rates on steel castings, in carloads, from Attica, Ind., to St. Louis, Chicago, Peoria, Streator and Mount Vernon, Ill. This case grew out of a complaint by the National Car Coupler Co. Reasonable rates were prescribed and award of reparation recommended.

In another report Examiner Cheseldine also held as unreasonable rates on bar iron from Knoxville to Vancleave and Wilhurst, Ky., prescribed reasonable rates, and recommended award of reparation. The Knoxville Iron Co. also was the complainant in this proceeding.

In dealing with the rates on bar iron, angle bars and channel bars from Knoxville to the wide destination territory covering points on the Louisville & Nashville in Kentucky and Tennessee, to the Ohio and Mississippi River crossings and to points in Central Freight Association territory, Examiner Cheseldine proposes a schedule ranging from 6c. per 100 lb. for five miles and under to 42c. per 100 lb. for 640 miles and over 620 miles. He states that any reduction of revenues due to necessary reductions in the rates should be compensated for by added traffic that the railroads would not otherwise receive.

"The revision of July 1, 1923, and the further revision required under the recommendations herein," he says, "should be regarded as parts of the general leveling of the rates from, to, and between points in the South, that has been in progress for some time."

The Knoxville Iron Co. had charged undue preference in favor of Pittsburgh, Birmingham, Ala.; Chattanooga, Tenn.; Atlanta, Ga.; Nashville, Tenn.; Louisville, Ky.; Cincinnati, Evansville, Ind.; Memphis, Tenn., and St. Louis. The evidence, however, was

directed to the relationship of the rates from those points as compared with the rates from Knoxville to the same destinations, distances considered. The complainant asked for the same rates, distances considered, as maintained from Pittsburgh. The rates from Pittsburgh to St. Louis and points in Indiana and Illinois were before the Commission at that time through the Jones & Laughlin proceedings. The examiner recommends granting the request of the Knoxville Iron Co. by extension of the Jones & Laughlin scale from Knoxville.

"The commodity complainant manufactures is an unfinished or semi-finished article," says the report. "Practically all of it is sold to manufacturers of wagons, agricultural implements and the like. All but the concrete bar must be reworked before using. They move on commodity rates applying on 'special iron,' which includes numerous manufactured iron articles in the list, such as axles, bolts, fencing and car wheels, which are finished commodities, and much more valuable than complainant's product. It is, therefore, urged that the articles under consideration should be removed from the special iron list and accorded lower rates. It is testified that bar iron is sold at any price that will pay a profit, and the rate naturally has a considerable bearing on meeting competition."

The examiner said the complainant now ships little of its product to the destinations under consideration because it cannot reach most of them by reason of the rate adjustment. On July 1, 1923, he pointed out, there was a general readjustment of rates on manufactured iron and steel articles between points in the South, in order to bring about an adjustment on fourth section (long-and-short-haul) principles. Prior to that time, he says, "the rates reflected the well-known basing point system of rate making, under which higher rates obtained at intermediate local points."

The Knoxville Iron Co. made extensive comparison of rates from Knoxville with rates from other points. Under the proposed scale the rates from Knoxville would be cut to 29c. and to Evansville, Ind., 28c. to Henderson and Owensboro, Ky. This is the same basis as the 29c. rate from Chattanooga to the river points. The complainant also pointed out that it must pay a rate of 29c. to Marysville, Ky., for a haul of 262 miles, while Pittsburgh producers get into the same point at the same rate on a haul of 374 miles. The proposed scale would give Knoxville a rate of 23.5c. On average hauls to Ohio River crossings from Knoxville, Tenn., a distance of 481 miles, the average rate is 46.4c., but under the proposed scale would be reduced to 35c. The average haul from Pittsburgh to Ohio River crossings is 401 miles with an average rate of 42.1c. The rate from Knoxville to St. Louis, a distance of 559 miles, is 40c. Under the proposed scale

Proposed Scale of Rates on Iron and Steel from Knoxville, Tenn.

Distance	Rate per 100 Lb. Cents	Distance	Rate per 100 Lb. Cents	Distance	Rate per 100 Lb. Cents
5 miles and under.....	6	100 miles and over 95....	15	290 miles and over 280....	24.5
10 miles and over 5....	7	110 miles and over 100....	15.5	300 miles and over 290....	25
15 miles and over 10....	7.5	120 miles and over 110....	16	320 miles and over 300....	26
20 miles and over 15....	8	130 miles and over 120....	16.5	340 miles and over 320....	27
25 miles and over 20....	8.5	140 miles and over 130....	17	360 miles and over 340....	28
30 miles and over 25....	9	150 miles and over 140....	17.5	380 miles and over 360....	29
35 miles and over 30....	9.5	160 miles and over 150....	18	400 miles and over 380....	30
40 miles and over 35....	10	170 miles and over 160....	18.5	420 miles and over 400....	31
45 miles and over 40....	10.5	180 miles and over 170....	19	440 miles and over 420....	32
50 miles and over 45....	11	190 miles and over 180....	19.5	460 miles and over 440....	33
55 miles and over 50....	11.5	200 miles and over 190....	20	480 miles and over 460....	34
60 miles and over 55....	12	210 miles and over 200....	20.5	500 miles and over 480....	35
65 miles and over 60....	12.5	220 miles and over 210....	21	520 miles and over 500....	36
70 miles and over 65....	13	230 miles and over 220....	21.5	540 miles and over 520....	37
75 miles and over 70....	13	240 miles and over 230....	22	560 miles and over 540....	38
80 miles and over 75....	13.5	250 miles and over 240....	22.5	580 miles and over 560....	39
85 miles and over 80....	14	260 miles and over 250....	23	600 miles and over 580....	40
90 miles and over 85....	14	270 miles and over 260....	23.5	620 miles and over 600....	41
95 miles and over 90....	14.5	280 miles and over 270....	24	640 miles and over 620....	42

it would be cut to 38c. The rate from Pittsburgh to St. Louis, a distance of 612 miles, is 43c.

In computing distances under the proposed scale, the examiner says, the shortest routes by existing connections for the interchange of carload traffic shall be used, embracing as a maximum the lines of not more than three line-haul carriers. Lines under common ownership or control, it is stated, should be considered as a single line, except that where a portion of the same railroad is used more than once, it may be counted as a separate line each time it is used.

In the other complaint of the Knoxville Iron Co. case, the examiner found unreasonable the combination rate basis of 65.5c. charged to Winchester, Ky., and beyond, for two shipments of bar iron from Knoxville to Vancleave and Wilhurst. The rates were held to be unreasonable to the extent that for the future they exceed 37c. and to the extent they exceeded 46.5c. when the shipments were made. Reparation of \$281.27 was awarded.

Applies Jones & Laughlin Scale on Rates for Steel Castings

In proposing the Jones & Laughlin scale of rates on steel castings, in carloads, from Attica, Ind., to St. Louis, Chicago, Peoria, Streator and Mount Vernon, Ill., Examiner Fuller says the present rates from Attica are unduly preferential to manufacturers of steel castings at Chicago, Granite City and East St. Louis, Ill., and St. Louis, who are given rates under the Jones & Laughlin scale. Reparation also was recommended. The present rates from Attica in cents per 100 lb. are 26c. to St. Louis, 20.5c. to Chicago, 22c. to Peoria, 22c. to Streator and 25.5c. to Mount Vernon. They would be reduced from 4.5c. to 5.5c. per 100 lb. if the Jones & Laughlin scale were applied.

The rates in cents per 100 lb. from Attica that would apply under the Jones & Laughlin scale compare with existing rates from other points, as follows:

From	To St. Louis	To Chicago	To Peoria	To Streator	To Mount Vernon
Attica	21	16	17.5	16.5	20
Chicago	17.5	..	13	9.5	17.5
Granite City..	..	..	13	17.5	9.5
St. Louis ....	..	17.5	13	17.5	12.5

British Empire Company Breaks Production Records

TORONTO, ONT., Nov. 10.—The British Empire Steel Corporation, Sydney, N. S., made several new high records in production in October. Chief among these was an output of 37,224 tons of ingots. Although this production was made by the open-hearth furnaces only, it was 1117 tons greater than the former high record of both open-hearth and Bessemer furnaces of 36,107 tons, made in May, 1917. The former record of open-hearth furnaces alone—35,013 tons—was made March last. In the rail mill output for October was 20,420 tons, as compared with the former record of 19,832 tons made in March, 1919. In the coke oven department in motor fuel production for October at 123,000 gal., broke the former record of 115,000 gal. made in May, 1923. Output at the collieries of the company amounted to 467,725 tons, as compared with 427,122 tons for the previous month of September.

Structural Steel for Mine Timber

A committee to consider the use of structural steel for mine timber has been appointed by the American Mining Congress and consists of the following: H. W. Montz, Lehigh Valley Coal Co., Wilkes-Barre, Pa.; J. M. Clark, E. E. White Coal Co., Glen White, W. Va.; M. D. Gibson, Bertha-Consumers Co., Pittsburgh; D. W. Blaylock, Madison Coal Corporation, Glen Carbon, Ill.; F. H. Frazier, Maher Collieries Co., St. Clairsville, Ohio; R. L. Twitchell, Carnegie Steel Co., Pittsburgh; George J. Hahn, Lorain Steel Co., Johnstown, Pa.; George O. Richardson, Bethlehem Steel Co., Bethlehem, Pa.

SCRAP SPECIFICATIONS

Are Discussed by Iron and Steel Purchasing Agents

C. B. Tobey, chairman of the American Railway Association committee on classification and reclamation of scrap reported at the recent Pittsburgh meeting of the National Iron and Steel Committee of the National Association of Purchasing Agents, that several leading railroad systems had advertised for quotations on certain lots of scrap, using for comparative purposes the A. R. A. and N. A. P. A. classifications. The quotations received were much higher for the scrap offered according to A. R. A. classifications. It was pointed out at the meeting, however, that the railroads had not classified their scrap according to the highest classifications permitted by the N. A. P. A. standards.

It was stated that the N. A. P. A. expected any seller of scrap to sort and grade the scrap according to the classifications which would secure the highest possible prices. He expressed the belief that another trial would be made on this basis following which a report will be made to the committee.

The committee representing the National Association of Waste Material Dealers met with the Iron and Steel Committee and discussed a tentative scrap contract form which was presented at the Milwaukee Convention of the N. A. P. A. The scrap contract form as revised will be submitted to the members of the Iron and Steel Committee and to prominent scrap buyers in the N. A. P. A. membership for criticism and comment, prior to the adoption of the completed form by the Association.

Certain slight revisions were recommended in the tentative specifications for iron rolling mill scrap. After these corrections have been made and advertised, the committee plans to ask the Bureau of Standards to call another National Conference for further consideration of the N. A. P. A. scrap specifications. This conference will probably be held in Washington during the early part of 1926. Plans were discussed for popularizing present scrap standards through publicity in trade publications and in the association bulletins.

The following were present: H. C. Wickline, Union Steel Casting Co., Pittsburgh, chairman; A. J. Copeland, Industrial Works, Bay City, Mich.; E. W. Krueger, Union Bed & Spring Co., Chicago; B. C. Sawyer, Bethlehem Fabricators, Bethlehem, Pa.; Walter Sanborn, United Engineering & Foundry Co., Pittsburgh; C. B. Tobey, Lehigh Valley Railroad, representing the American Railway Association; L. F. Boffey, editor of the *Purchasing Agent*, and Russell Forbes, assistant secretary, N. A. P. A.

Metal Trades Represented on Board of National Association of Manufacturers

John E. Edgerton, president Lebanon Woolen Mills, Lebanon, Tenn., was re-elected president of the National Association of Manufacturers of the United States at its thirtieth annual convention in St. Louis, Oct. 26-28. Among the newly named directors were the following:

A. A. Anderson, John A. Roeblings Sons Co., of New York, Trenton, N. J.; H. C. Atkins, E. C. Atkins & Co., Indianapolis; Max W. Babb, Allis-Chalmers Mfg. Co., Milwaukee; J. H. Frantz, American Rolling Mill Co., Columbus, Ohio; E. O. Goss, Scovill Mfg. Co., Waterbury, Conn.; John Kirby, Jr., Dayton Mfg. Co., Dayton, Ohio (ex-officio); Robert P. Lamont, American Steel Foundries, Chicago; Harry Scullin, Scullin Steel Co., St. Louis; John Trix, American Injector Co., Detroit.

C. J. Hunter, Wheeling Steel Corporation, Wheeling, W. Va., and Hugh Morrow, Sloss-Sheffield Steel & Iron Co., Birmingham, were elected state vice-presidents of the association.

A general meeting of the National Distribution Conference will be held in Washington, Dec. 15 and 16, under the auspices of the Chamber of Commerce of the United States.

FEWER BLAST FURNACES

Carnegie Steel Co. Abandons Edith Stack —Plans of Other Companies

PITTSBURGH, Nov. 9.—The Carnegie Steel Co., as lessee, has abandoned the old Edith furnace on the north side of this city and the American Steel & Wire Co., which holds title to the furnace, is making an appraisal of it to determine the amount to be written off in dismantling it. This is the fifth furnace the Carnegie Steel Co. has abandoned in the past year or so; all have been either of obsolete type, making large expenditures necessary to bring them to economical operation, or have been poorly located in relation to iron consuming units of the company.

The first stack to go was the one at Zanesville, Ohio, a small furnace which had made no iron, except for a short time in 1918, for several years prior to its abandonment. Then came the razing of the two furnaces at the Columbus steel works, the latter having always been the last plant to go into production in times of prosperity and the first to go down when business grew quiet. Recently the company began the dismantling of the old and infrequently used furnace at Niles, Ohio, and with Edith soon to go, there will remain 54 furnaces. Of that total there are two stacks, one at Steubenville, Ohio, and one at Sharon, Pa., that are not likely to be operated again.

Other companies also are getting rid of isolated and obsolete furnaces. Real economies in steel making are possible only where coke ovens, blast furnaces and steel works are properly grouped. The great objective of the steel companies is to make the $1\frac{1}{2}$ tons of coal used in producing the ton of coke required for each ton of pig iron suffice for making a ton of steel. This means that gas and tar from the coke ovens and the waste gas from the blast furnaces will be utilized for heating and power purposes.

The Republic Iron & Steel Co., Youngstown, in the past two years has abandoned and dismantled old furnaces in New Castle and Sharon, Pa., and at Youngstown, Ohio, and at an early date will begin the rebuilding and enlargement of the oldest unit of its Haselton group. The Bethlehem Steel Co. has two furnaces at its Cambria works at Johnstown, Pa., that have passed the point of usefulness, except by the expenditure of large sums in modernizing them. One old furnace at that plant has given place in the past year to a new one of larger capacity and another stack was rebuilt and enlarged. From these two the company is getting as much iron as from four of the older furnaces.

Strong Steel Market in Seattle

SEATTLE, Nov. 6.—New building construction in Seattle and nearby districts is still very active. The heavy materials such as plates, shapes, bars and also sheets are stronger than for some time, with demand for the latter increasingly active. As yet, the local Pacific Coast Steel Co. is operating only two of its four open-hearth furnaces. The local foundry trade is operating at between 40 and 50 per cent of capacity.

Demand for reinforcing bars is quite active. Most of this business is being taken by the local Pacific Coast Steel Co., which has advantages over outside makers in the matter of freights and deliveries, the company carrying stocks for the local trade for truck delivery. This company has taken about 500 tons of reinforcing bars for the new Skinner building in Seattle to be built by the Metropolitan Building Co. Prices on Eastern steel bars recently were lowered about \$1 per ton, and the local maker is now naming 2.35c. or lower, to meet the increased competition.

The local office of the Columbia Steel Corporation has been notified not to take any more sheet orders for this year shipment, as the company is filled up to the first of the year. Advances made in the East are reflected in higher prices asked in the local market, and there are intimations of another advance. Local sales managers are now quoting 5.10c. for No. 28 galvanized

and 3.90c. to 4c. for No. 28 black. A recent sale of blue annealed was on the basis of 2.40c. at Eastern mill.

A local representative of an Eastern maker of cold finished steel has made sales lately on the basis 3.50c., Pittsburgh, equalizing freight with Chicago to Seattle, which is \$1 per ton, making the price here 4.50c.

Talk is revived that some of the larger Washington canneries are again agitating the question of building a local tin plate mill, but it is not believed that anything will come of it. Difficulty in getting bars and labor are the two chief obstacles that confront the project.

The Pacific Coast Forge Co., the local spike maker, reports sales at \$3.35 per 100 lb. for standard sizes. An Eastern maker is offering standard sizes at \$3.25, but the long time required for delivery is diverting orders to the above named company.

RAILROAD EQUIPMENT

Fresh Inquiries for 4600 Cars and Orders for Over 800

Orders for over 800 freight cars, fresh inquiries for 4600 cars and an order for 10 locomotives, with the added fact that negotiations on pending lots are notably active, give the railroad equipment field much encouragement. Unfilled orders on Nov. 1 totaled 497 locomotives, the largest number since July 1, 1924. The chief items of the week are:

The Wabash has entered the market for 1000 automobile and 20 passenger cars.

The Lehigh Valley has issued an inquiry for 500 steel automobile cars.

The Atlanta & West Point bought 282 box cars from the Tennessee Coal, Iron & Railroad Co.

The Boston Elevated is asking prices on 100 subway cars.

The Erie plans to buy 50 suburban and 18 through line coaches.

The Buck Mountain Coal Mining Co. has placed 20 mine cars with the American Car & Foundry Co.

The Burlington has bought 16 tram cars of the American Car & Foundry Co.

The Santa Fe is inquiring for 3000 cars, consisting of 1000 refrigerator, 500 furniture, 500 box, 850 coal and 150 gondola cars.

The New York, New Haven & Hartford Railroad has placed 10 more heavy-type locomotives with the American Locomotive Co.

The Great Northern has placed 1000 underframes with the Siemsen-Stemmel Co.

The Denver & Rio Grande has awarded 500 gondola cars to the Western Steel Car & Foundry Co.

The National Railways of Mexico will take bids on 5 baggage and mail cars.

The Norfolk & Western will purchase 6 passenger and baggage cars, 13 coaches, 5 partition coaches, 4 baggage and mail and 15 baggage and express cars.

The Mystic Iron Works, 1 Federal Street, Boston, probably will close this week on steam and water pipe requirements for its Everett, Mass., blast furnace. Structural work on the furnace itself is completed, while the stove is approximately 50 per cent lined. The bridge is nearing completion and the ore dock is about 80 per cent completed.

The Weirton Steel Co., Weirton, W. Va., has taken the first step in its big program of plant betterments by placing the contract for the loading and unloading dock with the Dravo Contracting Co., Pittsburgh. The dock will be 610 ft. long and of reinforced concrete construction. Ice breakers also are to be built.

The Boeing Airplane Co., Seattle, Wash., has received an order from the Government for 25 army pursuit planes, mostly to be of the standard P-W 9 type, 32-foot wing spread, 400-hp., each weighing about 3000 lb.

JAPAN BUYS IN EUROPE

Germany Gets Rails—Tin Plate Bought Here— South America Takes German Wire

NEW YORK, Nov. 10.—Recent purchases by Japan have in several cases gone to European mills. Inquiry from China is light and merchants show no inclination to meet the current American ideas of price. An inquiry from China that has appeared in the past fortnight calls for 100 miles of 85-lb. rails, Chinese specifications. Whether or not this is a revival of an inquiry of similar size issued by a Chinese railroad several months ago is not known. It is reported in some quarters, however, that the present request for prices is for the purpose of establishing a selling price to be charged by the Han Yeh Ping Steel Co. in China, which, it is reported, has this tonnage of rails rolled and ready for delivery. There has been some light inquiry for small lots of sulphate of ammonia from Chinese sources.

Of the recent inquiries from Japan, the second specification of Tokio municipality on three miles of 91-lb. high T-rails to which was added two miles of guard rails, went to Mitsui & Co., and was placed at a favorable price with European mills, the high T-rails going to the "Calumeta" in Belgium and the guard rails to the Phoenix works of Otto Wolff & Co. in Germany.

Mitsui & Co. also booked the 18,000 tie plates asked for by the Imperial Government Railways. The tin plate, 4100 boxes for the Toyokana Naval Reserve Depot, has been closed with a large Japanese export house in New York. The gas tubing for the Tokio Gas Co., 300,000 ft., is still pending. Among recent purchases of other products was a small lot of wire rods placed by an American exporter to Japan with a large independent mill.

In the face of keen competition from Europe, particularly German mills, American sales of barbed wire to South American markets are diminishing. Although the present domestic market is on a basis of 3.35c. per lb. Pittsburgh for galvanized barbed wire, exporters claim that it would be necessary to quote as low as 2.50c. per lb., base Pittsburgh, to secure business today in competition with the European prices.

American importers continue active in quoting on numerous small lot inquiries for European steel, but the volume of actual purchasing is not in proportion to the inquiry. Open-hearth reinforcing bars are still quoted by importers in New York at as low as 1.90c. per lb., c.i.f. duty paid, Atlantic port, with intermediate grade Bessemer at about 1.75c. per lb., c.i.f. duty paid. Although there are several large lots of bars and other products in the market on which importers are quoting, there is apparently little inclination on the part of the purchasers to close the business.

GERMAN OUTPUT HIGHER

This Year Biggest Since War in Iron and Steel Products

BERLIN, GERMANY, Oct. 24.—The "Verein Eisen und Stahl Industrieller" publishes revised figures of production [supplementing those on page 1230 of THE IRON AGE for Oct. 29.]:

	(In Metric Tons)	
	Pig Iron	Steel
1913	16,761,311	17,598,826
1925 (nine months) ..	7,958,594	9,643,442

At the rate of the first nine months of 1925, the year's pig iron production will be about 10,500,000 tons; steel, 12,800,000 tons. These are much the largest figures since the War. The production of rolled goods is also, despite the Syndicate's 35 per cent restriction, larger than a year ago.

In 1924 the output was 8,174,320 tons; per working day, 26,627 tons. In the first six months of 1925 output was 5,633,797 tons; per working day, 37,549 tons. Per diem output in the eighteen months covered reached a low average of 15,758 tons in January, 1924, a high average of 38,582 tons in March, 1925, and dropped to 35,849 tons in June. In 1913 production of rolled goods in the then German area, including Luxemburg, was 16,698,950 tons. Of the output of 8,174,320 tons of rolled goods in 1924, 6,616,582 tons were produced in Rhenish-Westphalia.

German Output of Rolled Material

	(In Metric Tons)	
	1924	1925
	Whole Year	First Half
Bars	2,321,235	1,554,798
Wire rods	908,669	570,764
Thick sheets	766,940	503,369
Bands	281,891	228,791
Tubes	476,406	341,615
Railroad permanent way materials	1,052,858	735,869
Railroad rolling stock material	206,667	73,950

Officers of Farm Implement Manufacturers Association

At the thirty-second annual convention of the National Association of Farm Implement Manufacturers held two weeks ago in Chicago and reported in last week's issue of THE IRON AGE, new officers and honorary members were elected as follows:

President, E. J. Gittens, vice-president, J. I. Case Threshing Machine Co., Racine, Wis.

Chairman of Executive Committee, R. W. E. Hayes, vice-president Hayes Pump & Planter Co., Galva, Ill.

Members executive committee for term of three years: W. A. Weed, general manager Oliver Chilled Plow Works, South Bend, Ind.; A. E. McKinstry, vice-president International Harvester Co., Chicago; M. A. Steele, president Stover Mfg. & Engine Co., Freeport, Ill.; George White, vice-president and general manager Massey Harris Harvester Co., Batavia, N. Y.

Member of executive committee for term of two years: E. W. Meese, general manager De Laval Separator Co., Chicago. Honorary members: F. R. Todd, vice-president Deere & Co., Moline, Ill.; H. M. Wallis, Racine, Wis., formerly president of the J. I. Case Plow Works Co. For vice-presidents: F. Lee Norton, president Belle City Mfg. Co., Racine, Wis.; N. Cleveland, vice-president Yuba Mfg. Co., Marysville, Cal.; M. A. Cook, manager Southern Plow Co., Columbus, Ga.; C. A. Pattison, president Peoria Drill & Seeder Co., Peoria, Ill.; George H. Letz, president Letz Mfg. Co., Crown Point, Ind.; R. L. Wood, secretary Wood Brothers Thresher Co., Des Moines, Iowa; Lewis J. Brown, vice-president Nichols & Shepard Co., Battle Creek, Mich.;

R. R. Howell, superintendent R. R. Howell & Co., Minneapolis; L. W. Chase, president Chase Plow Co., Lincoln, Neb.; W. H. Beck, vice-president Henry & Allen, Auburn, N. Y.; Francis Farquhar, president A. B. Farquhar Co., York, Pa.; J. H. McVeigh, president Chattanooga Wagon & Body Co., Chattanooga, Tenn.

Pittsburgh Blast Furnace Conference

The program of the blast furnace conference under the auspices of the Steel Works Section, Engineers Society of Western Pennsylvania at the William Penn Hotel, Pittsburgh, Nov. 12, calls for a morning and afternoon session and an informal dinner and entertainment in the evening. Arthur G. McKee, president Arthur G. McKee Co., Cleveland, will give some observations regarding blast furnace design at the morning session and will be followed by A. E. Maccoun, superintendent blast furnaces, Edgar Thomson Works, Carnegie Steel Co., Braddock, Pa., whose subject is "Modern Blast Furnace Stoves." In the afternoon a joint paper by T. L. Joseph, P. H. Royster and S. P. Kinney, Pittsburgh station, U. S. Bureau of Mines, "Effect of Physical Properties of Ore and Coke on the Capacity of the Blast Furnace," will be read by Mr. Joseph, and one by J. S. Fulton, special representative, Ingersoll-Rand Co., Pittsburgh, on "A Method of Determining Comparable Blowing Practices for Iron Blast Furnaces."

Drop of Franc Dominates Europe

Export Markets Unsettled—Fusions and Trade Agreements—Rails and Sheets Active

(By Cablegram)

LONDON, ENGLAND, Nov. 9.

DOMESTIC demand for foundry pig iron is moderate but export sales still are poor, owing to increased Continental competition. America has bought further small parcels and a renewal of big buying is hoped for. Hematite is active and East Coast production has been increased by blowing in two furnaces. West Coast production also has been augmented, making eleven furnaces operating there.

Foreign ore is quiet, but some furnaces are asking for deliveries against postponed shipments. Bilbao Rubio is held at 19s. 9d. to 20s. 3d. (\$4.78 to \$4.90) c.i.f. Tees.

Finished steel inquiry is improving, but consumers generally are slow to operate, except to cover near requirements.

Sheets and Tin Plate

Tin plate is steady and there is good all-around demand. Makers are well booked and now are discussing final details of their pooling scheme. But it is doubtful whether this materializes, owing to increased sales and better prices in recent weeks. The United States has sold about 40,000 boxes of quarter oil size wasters to the United Kingdom.

Galvanized sheet demand is being maintained and sales of thick gages are made into February.

Far Eastern demand for black sheets is moderate; other markets are quiet.

On the Continent of Europe

Continental markets are unsettled by the depreciation of the French franc. Demand generally is quiet. Domestic consumers are buying sparingly.

Negotiations looking to the formation of the Ruhr Steel Trust are proceeding, but no definite conclusion is anticipated yet.

Germany has secured from Argentina orders for 6000 tons of seamless tubes.

Stimulus from American Iron Purchases Dissipated Through Franc Exchange Drop

LONDON, ENGLAND, Oct. 29.—Conditions in the iron and steel markets have shown a slight improvement during the last week or so, home consumers having been inclined to operate. The American purchases of pig iron here have been a stimulant to a certain extent, but the export buying of pig iron otherwise has been hampered further by the increasing depreciation of the French franc. Prices of British material still lose ground, but consumers the world over cannot be tempted into operating with more freedom and, generally speaking, the policy of hand-to-mouth purchasing continues. Of course there are exceptions, namely the Colonial Governments and others who have their regular orders to place for railroad material and stores. The ordinary bazaar trades, however, of the Eastern markets are dormant, so far as British steel is concerned, except in the case of such specialties as galvanized sheets and tin plate.

The markets on the Continent have been much disturbed lately by the franc exchange rate movements, but there is no doubt that, speaking broadly, the works are fairly well filled, thanks to the output in the Charleroi district being cut down by the prolonged labor

(Continued on page 1359)

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.84 per £, as follows:

Durham coke, del'd..	£0 19s.	\$4.60
Bilbao Rubio ore†...	1 0½	4.96
Cleveland No. 1 fdy.	3 8	16.46
Cleveland No. 3 fdy.	3 6	15.97
Cleveland No. 4 fdy.	3 5	15.73
Cleveland No. 4 forge	3 4½	15.61
Cleveland basic.....	3 5	15.73
East Coast mixed....	3 14½	18.03
East Coast hematite..	4 19	23.96
Ferromanganese	15 10	75.02
*Ferromanganese	15 5	73.81
Rails, 60 lb. and up..	8 0 to £8 15s.	38.72 to \$42.35
Billets	6 0 to 7 10	29.04 to 36.30
Sheet and tin plate bars, Welsh	6 5	30.25
Tin plates, base box..	0 19¾ to 1 0¼	4.78 to 4.90
Ship plates	7 10 to 8 0	1.62 to 1.73
Boiler plates	11 10 to 12 0	2.48 to 2.59
Tees	7 12½ to 8 2½	1.65 to 1.75
Channels	6 17½ to 7 7½	1.49 to 1.60
Beams	6 12½ to 7 2½	1.43 to 1.54
Round bars ¾ to 3 in.	8 2½ to 8 12½	1.75 to 1.86
Steel hoops	10 15 and 12 10*	2.32 and 2.70*
Black sheets, 24 gage	11 5	2.43
Black sheets, Japanese specifications	15 5	3.30
Galv. sheets, 24 gage.	16 10, upward	3.57, upward
Cold rolled steel strip, 20 gage	18 0	3.89

*Export price.

†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

Foundry pig iron:(a)					
Belgium	£3 0s.	to £3 2s.	\$14.52	to \$15.00	
France	3 0	to 3 2	14.52	to 15.00	
Luxemburg	3 0	to 3 2	14.52	to 15.00	
Basic pig iron:(a)					
Belgium	3 0	to 3 2	14.52	to 15.00	
France	3 0	to 3 2	14.52	to 15.00	
Luxemburg	3 0	to 3 2	14.52	to 15.00	
Coke	0 18		4.36		
Billets:					
Belgium	4 6½	to 4 8	20.93	to 21.30	
France	4 6½	to 4 8	20.93	to 21.30	
Merchant bars:					
Belgium	5 4½	to 5 6	1.13	to 1.14	C. per Lb.
Luxemburg	5 4½	to 5 6	1.13	to 1.14	
France	5 4½	to 5 6	1.13	to 1.14	
Joints (beams):					
Belgium	4 18½	to 5 0	1.07	to 1.08	
Luxemburg	4 18½	to 5 0	1.07	to 1.08	
France	4 18½	to 5 0	1.07	to 1.08	
Angles:					
Belgium	5 0		1.08		
¼-in. plates:					
Belgium	6 7½	to 6 12½	1.38	to 1.43	
Germany	6 7½	to 6 12½	1.38	to 1.43	
¾-in. ship plates:					
Belgium	5 17½		1.27		
Luxemburg	5 17½		1.27		
Sheets, heavy:					
Belgium	6 14	to 6 15	1.45	to 1.46	
Germany	6 14	to 6 15	1.45	to 1.46	

(a) Nominal.

GERMAN FOREIGN TRADE

Imports Exceed Exports, Thus Interfering with Dawes Plan Transfers

BERLIN, GERMANY, Oct. 24.—The foreign trade balance, heavily passive during the past twelve months, shows signs of improvement. In the first "Dawes Year," from Sept. 1, 1924, to Aug. 31, 1925, imports, omitting precious metals, totaled 12,443,000,000 marks; exports, only 8,138,000,000 marks. The large imports are due mainly to new foreign loans, which have been in great part spent abroad, to replenish the depleted stock of food, raw materials and finished goods.

In August imports (without precious metals) totaled 1,179,000,000 marks; exports, only 725,000,000 marks, the import surplus being 454,000,000 marks. In September imports declined to 1,069,087,000 marks, while exports rose to 776,622,000 marks, the passive balance being only 292,445,000 marks. A further improvement is urgently necessary if payment of current liabilities on foreign debts is to be made.

Trade in Iron, Steel and Coal

The foreign trade balance in the "heavy industries" continues to improve. The coal balance is definitely active, exports in the first eight months of 1925 having been 9,194,264 metric tons, against imports of 5,361,371 tons. Exports of iron and steel and wares thereof (omitting machinery) in the eight months were 2,194,502 tons; imports, 1,065,786 tons. Among the separate items were:

German Foreign Trade, First Eight Months of 1925
(In Metric Tons)

	Imports	Exports
Pig iron	138,428	114,729
Scrap	224,673	173,236
Ingots, blooms, etc.	141,028	47,930
Bars, structural forms, etc.	351,460	314,528
Sheets	45,064	269,976
Wire	32,962	191,056
Rails, ties, etc.	66,851	295,128
Wheels, axles, etc.	165	54,178
Boilers, etc.	440	26,239
Agricultural implements	496	32,458
Tools, cutlery, etc.	1,145	23,058
Screws, rivets, horseshoes, etc.	1,351	21,312
Wire wares	570	66,800
Machinery	24,948	232,551

French Iron and Steel Exports

PARIS, FRANCE, Oct. 16.—French exports of iron and steel during the first eight months were 2,100,709 tons, against 1,549,307 tons for the same period of 1924. Imports were 95,735 tons, as against 473,091 tons for the eight months in 1924. Exports of pig iron were 450,669 tons in 1925, against 487,221 tons in 1924.

Absorb Freight on Steel Pipe for California Delivery

PITTSBURGH, Nov. 9.—To meet a situation created in the secondary pipe market in California by widely varying freight rates on water shipments from Atlantic ports via the Panama Canal, the National Tube Co. and other manufacturers using the so-called conference lines and paying the conference lines' rate, which is 45c. per 100 lb., recently announced delivered prices which recognize the non-conference lines' rate of 30c. per 100 lb. For several months manufacturers shipping in the boats of lines outside of the conference have been passing on to their distributors the saving in freight charges, and this advantage of \$3 a ton has been reflected in resale prices in California to the disadvantage of jobbers receiving shipments in the conference line boats.

Under the adjustment all California jobbers are placed on an even footing as to delivered costs. The action means an absorption of \$3 a ton by the companies shipping in conference line boats, because the rate on those lines remains at 45c. per 100 lb., but it does not mean any change in mill discounts, which in the case of shipments via the Panama Canal are the Pittsburgh discounts. Whether the shipping companies subscribing to the conference lines' rate will be induced to

reduce the charge to the competitive level is something for the future to disclose, but it can be stated with certainty that renewed efforts will be made to get the Interstate Commerce Commission to take over control of intercoastal steamship rates and to establish uniform water rates such as now rule on rail shipments.

Lake Superior Iron Ore Shipments in October

Shipments of iron ore from Lake Superior regions in October were 7,004,443 gross tons, as compared with 5,596,648 tons in October, 1924. The season's shipments to Nov. 1, this year, have amounted to 49,816,469 tons, as compared with 40,558,525 tons to Nov. 1, 1924, an increase of 9,257,944 tons, or 22.83 per cent. The following table gives the October and season shipments by ports and the corresponding figures for 1924 in gross tons:

	October		To Nov. 1	
	1925	1924	1925	1924
Escanaba	789,169	670,283	4,963,237	3,740,626
Marquette	520,223	391,551	3,066,656	2,234,004
Ashland	918,728	553,819	6,201,686	4,485,685
Superior	1,831,216	1,596,777	12,530,209	12,837,822
Duluth	2,131,309	1,709,823	16,426,156	12,600,988
Two Harbors	813,798	674,395	5,628,525	4,659,400
Total	7,004,443	5,596,648	49,816,469	40,558,525
Increase	1,407,795		9,257,944	

The Duluth proportion this year to Nov. 1 of 32.97 per cent of the season's shipments is slightly less than last year's, when it was 31.07 per cent. The Great Northern dock at Superior is credited with 24.65 per cent this year, against 28.69 per cent to Nov. 1, 1924.

Axle Manufacturers Take Over Spring Company

Consolidation of the Eaton Axle & Spring Co., Cleveland, with the American Auto Parts Co., Detroit, a subsidiary of the American Steel Foundries Co., has been announced coincident with the publication of the third quarter earnings of the latter company. It is planned to form a new company which will take over the spring plant of the American Auto Parts Co. at Detroit and also the plant and equipment at Pontiac, Mich., and the equipment at Cleveland of the Eaton Axle & Spring Co. The property of the American Auto Parts Co. consists of a building site of 15 acres and 200,000 sq. ft. of manufacturing floor space. More complete details of the merger are not as yet available. The American Steel Foundries, it is understood, will receive payment for its Detroit plant in the entire issue of preferred stock of the new company. The Eaton company recently closed large axle contracts and is purchasing considerable new equipment.

Earnings of the American Steel Foundries for the nine months ended Sept. 30 show a substantial increase over last year. The net income, after charges for depreciation, Federal taxes and preferred dividends, was equivalent to \$3.49 a share on the basis of 902,745 no par value common shares outstanding, comparing with \$4.31 a share on \$24,073,200 in common stock of a par value of \$33.33 in the same period of 1924.

Good Record of Steel Life Boats

Steel lifeboats are said to have overwhelming advantages in final cost over wooden lifeboats, according to a case recently reported in England. A steamer 13 years old carried three wooden lifeboats and one of seamless steel. The three wooden lifeboats have been replaced twice, in addition to extensive intermediate repairs. The steel lifeboat is still the original unit, having had one small patch and the ordinary periodical painting.

The handling of freight and store-door deliveries by motor truck is among the topics to be discussed at a national automotive transportation meeting of the Society of Automotive Engineers, to be held in Philadelphia, Nov. 13 and 14, at the Benjamin Franklin Hotel.

Pig Iron Rates From South Reduced

Freight Charges to Kansas City, St. Louis and Ohio River Crossings Are Cut
33c. to \$1.25 a Ton

WASHINGTON, Nov. 10.—Reductions in pig iron rates ranging from 33c. to \$1.25 per gross ton were authorized by the Interstate Commerce Commission, in a decision last week on proposed schedules covering car-load shipments from producing points in Alabama, Tennessee, Kentucky and Virginia to Kansas City and St. Louis, Mo., Ohio River crossings and related and intermediate points. The order of suspension was vacated and the new rates will become effective on Dec. 3. The schedules had been the object of much controversy. Blast furnace interests, including those in the Granite City, Ill., Chicago, Cleveland, Hanging Rock and Ironton, Ohio, districts, had protested against the proposed rates being made operative.

Under the new schedules the pig iron rate from Birmingham to St. Louis will be reduced from \$5.17 to \$4.42, a cut of 75c.; from Birmingham to Louisville, the rate will be cut from \$3.72 to \$3.39, a decrease of 33c.; from Birmingham to Cincinnati the reduction will be from \$4.05 to \$3.69, a cut of 36c., and from Birmingham to Kansas City the reduction will be from \$7.45 to \$6.20, a decrease of \$1.25. According to reports received here, the trade expects competition between Northern and Southern furnaces at the destination points to become considerably intensified.

In its decision the commission pointed out that in 1921, following a marked falling off in business to Northern markets, Southeastern producers requested the carriers to reduce pig iron rates to St. Louis and the Ohio River. In November, 1922, the commission held that the proposed rates would result in undue prejudice and preference and had not been justified. At the same time, it added that "It may well be that the present rates from these Southern furnaces should be reduced." It was stated that the findings were therefore without prejudice to the filing of new schedules.

Following reductions in pig iron rates from Chicago, St. Louis, Duluth, Minn., and other Northern points to Kansas City, in the latter part of 1924, the Southern producers succeeded in getting carriers to consent to lower rates to Kansas City, but finally it was concluded to spread the reduction to all of the destinations included in the decision so as to prevent discriminations.

It was held by Southern carriers that owing to the competitive relationship between consumers of pig iron at St. Louis and Kansas City on the one hand, and at Ohio River crossings on the other, it would be improper to reduce the rates of the former without corresponding reductions to the latter. They then proposed that the rates to the Ohio River crossings be reduced so that the base rate to Louisville would bear the same percentage relationship to the reduced rate to St. Louis that the rate to Louisville bore to the rate to St. Louis on Aug. 25, 1920. These lines also called attention to the competition of producers in the Birmingham district, for instance, with producers at Sheffield and Florence, Ala., who have available water transportation on the Tennessee River, and cited, as illustrative, a water and rail rate of \$3.28 from those points to St. Louis. Consideration of the manner in which the proposed reductions were determined, however, indicates that the water competition referred to was of little or no significance.

The basis for the existing rates from Southern pro-

ducing points to these destinations was established in the so-called Sloss-Sheffield Steel & Iron Co. case. In its decision the commission pointed out that while there is some market for Southern basic iron in the destination territory, the principal market is for foundry iron.

Testimony of foundrymen, according to the decision, was that for a number of purposes the most desirable results are obtained by the mixture of Southern and Northern irons, but that the proportions used are dependent to a considerable extent on the respective delivered prices of which the freight rates necessarily form a part. They further testified, according to the

decision, that the amount of Southern iron now being used was less than was desirable and that the failure to use a larger proportion was due to the price. In speaking of the gradual decrease in the percentage of Southern pig iron shipped to points outside of Southern territory, the decision stated that the present record shows the corresponding percentages as 37.4 for 1923, and 18.7 for 1924. During the past several years, however, it is declared that the production

of pig iron in the South has not materially changed, which is said to be also true, generally speaking, of other pig iron producing sections; hence the falling off in shipments to points outside the South has been accompanied by increasing consumption within that territory.

The decrease in outside shipments is ascribed to the cumulative effect of the increased spread between the rates paid from Southern furnaces and their Northern competitors. It was contended on behalf of the protestants, however, that the falling off in outside shipments from the South has been due to rapid industrial development accompanied by increased consumption of pig iron in that territory and to the modern economic trend in the iron and steel industry toward consumption of pig iron in the immediate vicinity of its production.

"There is nothing upon this record to indicate that any of the proposed rates are less than reasonable maxima, and we do not regard them as such," said the commission. "The important question is whether they would result in undue prejudice. The spreads between the proposed rate from Birmingham and the present rates from Northern producing points to Kansas City are \$1.96 from Chicago, \$3.66 from Granite City, and \$1.90 from Duluth. To the intermediate points of Springfield and Pittsburgh the advantage of Granite City would still be \$1.70. We do not think that such spreads would place any of these Northern producers at an undue disadvantage in marketing their products at Kansas City or intermediate destinations."

The commission also makes similar comment with regard to competition between furnaces in the Ohio and Southern districts as it relates to the various destination points.

A committee of the American Association of Oil Burner Manufacturers, 518 Bank of Galesburg Building, Galesburg, Ill., has been appointed to draft a standard or uniform sales contract, as between manufacturers and dealers, and manufacturers or dealers and users or buyers of oil burners; and a standard warranty or guarantee.

Pig Iron Rates from Southern and Northern Furnaces

To	*New Rates From	—Existing Rates From—		
	Birmingham	Chicago	Ohio	Cleveland
St. Louis	\$4.42	\$2.16	\$4.79	\$5.80
Louisville	3.39	3.28	3.38	4.79
Cincinnati	3.69	3.15	2.27	3.28
Kansas City	6.20	4.24	...	...

*Effective Dec. 3.

Iron and Steel Markets

Large Railroad Demand for 1926

That Rather Than Construction May Feature the Coming Year—
Firm Prices on Heavy Products—Pig Iron Higher While
Coke Falls—Heavy Tin Plate Inquiry

THAT 1926 is likely to be a year of large railroad buying, with track and equipment demand taking the place of prominence held this year by new construction, is more plainly pointed to by the developments of the past week.

With the placing of 160,000 tons of rails by the Pennsylvania Railroad (with 40,000 tons more yet to be bought) and of 74,000 tons by the Santa Fe the 1926 total is now over 1,500,000 tons, while a number of lines, including 10 entering Chicago territory, are yet to buy. Of rails now on the books 400,000 tons will be rolled by the Alabama mill, track laying by Southern roads being larger than in years. An unusual scale of track needs is seen in bids soon to be taken on 25,000 tons of tie plates and 45,000 kegs of spikes for the New York Central and a B. & O. inquiry for 15,000 tons of tie plates.

Car building programs also are coming forward. Definite inquiries just made include 3000 for the Santa Fe, 1000 for the Wabash and 750 for the Lehigh Valley. Early additions to this list are expected.

Steel producers have moved toward a stronger position in the heavier products—plates, shapes and bars—in the past week, after having advanced some of the lighter forms, especially sheets. The Carnegie Steel Co. has announced a new schedule calling for 1.90c. base, Pittsburgh, as the large-lot price for shapes, and 2c. for 50-ton orders; 1.90c. as minimum on plates and 2c. for ordinary tonnage; 2c. for bars, to large buyers, and 2.10c. on ordinary lots.

At the same time some mills are more disposed to accept a moderate amount of forward business in bars and possibly sheets at today's levels. This points to a 2c. price for the bulk of rollings in the next few months in the case of bars, or \$2 a ton above the basis of the bars shipped in recent months.

The Steel Corporation shipped an average of 40,000 tons a day of finished products in October, which makes the month's addition of 391,000 tons to its unfilled orders a significant item of improvement. However, this gain is largely in rails, which will not be rolled until next year. Thus, on the general run of products the past month was practically a stand-off.

Present operations of the industry as a whole are close to the October average, or 83 per cent, the daily rate of 144,183 tons of steel ingots last month being 7.3 greater than the September rate of 134,342 tons. The 1925 steel output will exceed that of 1923 (43,485,000 tons), if the October rate is kept up to the end of the year and may equal the record of 43,619,000 tons made in the war peak of 1917.

To most producers such a possibility for 1925

comes as a surprise, in view of the year's unsatisfactory prices, and it has aided the firmer stand lately taken on prices.

THE IRON AGE's pig iron figures for October, showing an increase of 7.3 per cent in daily rate over September (exactly the same as for steel ingots) have had unusual attention in view of incorrect figures published elsewhere indicating about 15 per cent increase. The present statistical position is of special importance in view of coke market uncertainties and the general advance in pig iron prices.

Though pig iron buying fell off this week, there was a fair demand for first quarter from melters who would guard against further advance, and in most markets the price went 50 cents higher. Foreign iron is steadily sold in the East and a pipe company is reported to have taken a round lot of English iron. Four Alabama furnaces will blow in in the near future.

The coke market has dropped from \$8 last week to \$6 for spot furnace coke. Eastern congestion led to embargoes and hundreds of loaded cars are on tracks at Connellsville ovens.

The Standard Oil Co. of New Jersey is inquiring for 318,000 boxes of tin plate for the first half of 1926 and for 439,000 boxes for the second half. The advance in pig tin has been urged as the basis for an advance beyond \$5.50 for tin plate. Large buyers did better than \$5.50 this year and that figure as a minimum is a possibility of the present situation.

Late bookings of fabricated steel amounted to 65,000 tons, the largest week of the year. Included were the Liberty bridge, Pittsburgh, taking 10,000 tons, and a Niagara River bridge, 8750 tons.

THE IRON AGE pig iron composite price is higher, being \$21.30 against \$20.79 last week and \$19.54 one year ago.

Pittsburgh

Plates, Shapes and Bars Stronger—Pig Iron Again Advances but Coke Breaks

PITTSBURGH, Nov. 10.—The steel market continues to grow more favorable to sellers, the most striking instance of this tendency in the past week being in the heavy tonnage products, which have been somewhat laggard in developing the strength which became apparent several weeks ago in sheets and some of the other lighter forms of steel. The leading maker of shapes has just announced a new schedule calling for 1.90c., base Pittsburgh, as the large lot price, 2c. on lots of 50 tons or more, and 2.10c. on small tonnages. On plates, it has announced 1.90c. as a minimum and

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	Nov. 10, 1925	Nov. 2, 1925	Oct. 13, 1925	Nov. 11, 1924
No. 2X, Philadelphia†...	\$23.76	\$23.26	\$22.26	\$21.76
No. 2, Valley furnace†...	20.50	20.00	19.00	19.00
No. 2, Southern, Cin'tit†...	25.05	25.05	23.05	21.55
No. 2, Birmingham, Ala.†...	21.00	21.00	19.00	17.50
No. 2 foundry, Ch'go furn.*	23.00	22.00	21.50	21.00
Basic, del'd, eastern Pa.	22.50	22.00	21.00	20.00
Basic, Valley furnace...	20.00	19.50	18.50	19.00
Valley Bessemer del'd P'gh	22.76	22.26	21.26	22.26
Malleable, Chicago furn.*	23.00	22.00	21.50	21.00
Malleable, Valley	20.50	20.00	19.00	19.50
Gray forge, Pittsburgh...	21.76	21.26	20.26	20.26
L. S. charcoal, Chicago...	29.04	29.04	29.04	29.04
Ferromanganese, furnace...	115.00	115.00	115.00	100.00

Rails, Billets, etc., Per Gross Ton:

	Nov. 10, 1925	Nov. 2, 1925	Oct. 13, 1925	Nov. 11, 1924
O.-h. rails, heavy, at mill...	\$43.00	\$43.00	\$43.00	\$43.00
Bess. billets, Pittsburgh...	34.00	35.00	35.00	35.50
O.-h. billets, Pittsburgh...	34.00	35.00	35.00	35.50
O.-h. sheet bars, P'gh...	35.00	35.00	35.00	37.00
Forging billets, base, P'gh	40.00	40.00	40.00	40.50
O.-h. billets, Phila.....	39.30	39.30	39.30	41.17
Wire rods, Pittsburgh...	45.00	45.00	45.00	45.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb...	1.90	1.90	1.90	1.90
Light rails at mill.....	1.65	1.65	1.65	1.80

Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	2.12	2.12	2.12	2.32
Iron bars, Chicago.....	1.90	1.90	1.90	2.10
Steel bars, Pittsburgh...	2.00	2.00	2.00	2.00
Steel bars, Chicago.....	2.10	2.10	2.10	2.00
Steel bars, New York.....	2.34	2.34	2.34	2.34
Tank plates, Pittsburgh...	1.85	1.80	1.80	1.80
Tank plates, Chicago.....	2.10	2.10	2.10	2.10
Tank plates, New York...	1.94	1.94	2.04	1.94
Beams, Pittsburgh	1.90	1.90	1.90	2.00
Beams, Chicago	2.10	2.10	2.10	2.10
Beams, New York.....	2.24	2.24	2.24	2.14
Steel hoops, Pittsburgh...	2.50	2.50	2.40	2.50

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire,	Nov. 10, 1925	Nov. 2, 1925	Oct. 13, 1925	Nov. 11, 1924
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.25	3.25	3.10	3.50
Sheets, black, No. 28, Chi-				
cago dist. mill.....	3.35	3.35	3.30	3.60
Sheets, galv., No. 28, P'gh	4.50	4.50	4.20	4.60
Sheets, galv., No. 28, Chi-				
cago dist. mill.....	4.60	4.60	4.35	4.70
Sheets, blue, 9 & 10, P'gh	2.40	2.40	2.25	2.70
Sheets, blue, 9 & 10, Chi-				
cago dist. mill.....	2.50	2.50	2.40	2.80
Wire nails, Pittsburgh...	2.65	2.65	2.60	2.75
Wire nails, Chicago dist.				
mill	2.70	2.70	2.70	2.85
Plain wire, Pittsburgh...	2.50	2.50	2.50	2.50
Plain wire, Chicago, dist.				
mill	2.55	2.55	2.55	2.60
Barbed wire, galv., P'gh...	3.35	3.35	3.35	3.45
Barbed wire, galv., Chi-				
cago dist. mill.....	3.40	3.40	3.40	3.55
Tin plate, 100 lb. box, P'gh	\$5.50	\$5.50	\$5.50	\$5.50

Old Material, Per Gross Ton:

Carwheels, Chicago	\$18.25	\$18.00	\$17.00	\$18.50
Carwheels, Philadelphia ..	18.50	18.50	18.50	17.50
Heavy steel scrap, P'gh...	19.50	19.50	18.50	19.50
Heavy steel scrap, Phila...	17.50	17.00	16.50	17.00
Heavy steel scrap, Ch'go...	16.00	16.00	16.00	17.25
No. 1 cast, Pittsburgh...	18.00	18.00	17.00	18.00
No. 1 cast, Philadelphia...	18.00	18.00	18.00	17.50
No. 1 cast, Ch'go (net ton)	18.25	18.00	17.50	18.00
No. 1 RR. wrot, Phila....	18.50	18.50	18.00	18.00
No. 1 RR. wrot. Ch'go (net)	15.75	15.50	14.00	15.50

Coke, Connellsville,

Per Net Ton at Oven:				
Furnace coke, prompt....	\$6.00	\$8.00	\$5.00	\$3.00
Foundry coke, prompt....	7.00	9.00	5.00	4.00

Metals,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York...	14.87 1/2	14.75	14.62 1/2	13.87 1/2
Electrolytic copper, refinery	14.55	14.50	14.37 1/2	13.62 1/2
Zinc, St. Louis.....	8.75	8.67 1/2	8.20	6.72 1/2
Zinc, New York.....	9.10	9.02 1/2	8.55	7.07 1/2
Lead, St. Louis.....	9.50	9.50	9.25	8.87 1/2
Lead, New York.....	9.90	9.85	9.60	8.90
Tin (Straits), New York...	62.37 1/2	63.62 1/2	62.12 1/2	54.37 1/2
Antimony (Asiatic), N. Y.	20.00	20.00	17.00	14.00

THE IRON AGE Composite Prices

Finished Steel

Nov. 10, 1925, 2.431c. Per Lb.

One week ago.....	2.424c.
One month ago.....	2.403c.
One year ago	2.474c.
10-year pre-war average.....	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

High	Low
1925 2.560c., Jan. 6	2.396c., Aug. 18
1924 2.789c., Jan. 15	2.460c., Oct. 14
1923 2.824c., April 24	2.446c., Jan. 2

Pig Iron

Nov. 10, 1925, \$21.30 Per Gross Ton

One week ago.....	\$20.79
One month ago.....	19.71
One year ago.....	19.54
10-year pre-war average.....	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

High	Low
1925 \$22.50, Jan. 13	\$18.96, July 7
1924 22.88, Feb. 26	19.21, Nov. 3
1923 30.86, March 20	20.77, Nov. 20

2c. as the ordinary tonnage base. For bars, the new schedule calls for 2c. on large lots and 2.10c. for ordinary tonnages. Independent companies also are taking a stronger price stand and on new business are generally quoting 2c., base Pittsburgh, on all three products. Buyers who have protections at low prices are being allowed to specify against them, but efforts on their part to get extensions or to place business for shipment after Jan. 1 at recent prices are being firmly resisted. Sheet makers meanwhile seem to have fully solidified their recent advances, and there is a firm market in other products, because with the general tendency of prices upward the possibility that those lines which have not yet advanced will do so, encourages more active demand.

The story of business still is one of betterment. The American Sheet & Tin Plate Co. last month had

the largest sheet business of any month since early 1924, and preliminary estimates indicate that independent manufacturers did as well. October sales of the latter ran well beyond 400,000 net tons and with the exception of November, last year, when the bookings were approximately 462,000 tons, last month was the best in sales on record. Sales ran about 100,000 tons ahead of shipments, and unfilled obligations of the independent manufacturers were increased by that amount.

Last month's bookings also have provided makers of hot-rolled flats and cold-rolled strips with good-sized order books, and makers of tin plate have enough business in sight to sustain an 80 per cent of capacity operation over the remainder of this year. Backlog tonnage is lacking in pipe and in wire products, but the demand for the latter still is growing and there is

a remarkably good demand for standard pipe in connection with building construction, which is heavy, particularly in the East. Rail mills are well fortified with business and a large amount of track accessories business is in sight. To meet the demands which are large in almost all directions, and really insistent in the case of automobile body sheets, a further speeding up of finishing mill capacity has been necessary and with that development has come some increase in the active ingot making capacity. The Carnegie Steel Co. still is producing ingots at around 75 per cent of capacity, but the average of independent company operations in this and nearby districts is about 85 per cent, giving a general average of about 83 per cent. The Pittsburgh Crucible Steel Co. has taken off a blast furnace, having taken advantage of the high coke market to secure a larger profit than was possible from the pig iron. This loss has been offset, however, by the putting on of another furnace at the Cambria Works, Bethlehem Steel Co., Johnstown, Pa. This represents full operation of the furnaces of that plant, as the three idle stacks there are not in shape for operation.

Pig iron has advanced 50c. a ton further, largely because of a desire of melters to fortify themselves against further advances. Coke prices have broken badly since a week ago, with furnace grade now available at \$6 per net ton at ovens for spot shipment as against \$8 a week ago.

Pig Iron.—Prices generally have advanced 50c. more since a week ago. Melterers are satisfied that their requirements are going to be larger than they estimated a short time ago, and a desire also to escape paying higher prices has made them rather eager to secure supplies. In the Pittsburgh district proper business is comparatively light, but consumers outside the district are showing considerable anxiety for supplies and the position of Valley furnaces is strengthened by the fact that they can now ship well outside of their natural territories because of the high prices ruling at Lake front furnaces. On the bulk of last week's business in foundry iron \$20.50, Valley furnaces, for No. 2 was the prevailing price, and that was the price quoted the Westinghouse Electric & Mfg. Co. by all producers on 3500 tons for its Trafford, Pa., foundry. The National Malleable & Steel Castings Co. covered its basic iron requirements for its Sharon, Pa., plant at around \$19, the iron coming from middle interests, but since that sale there was one of 2000 tons to a Pittsburgh district steel maker and one of 5000 tons to an Ohio River steel company, both at \$20, Valley furnace. A sale of 500 tons of Bessemer iron is noted to a local melter at \$21, Valley furnace, and that quotation also has been made on two other inquiries, one for 1000 tons and the other for 3000 tons. The larger tonnage is wanted by the Allegheny Steel Co. Steel companies do not seem to have any Bessemer iron for sale, and as there is only one merchant producer who can supply this grade at present, the full quotation is likely on these pending tonnages. Steel companies are not active sellers of any grade of pig iron at present, because there is not only a requirement for practically all of their production, but many of them are deferring putting on additional blast furnaces so long as the coke market yields a larger profit than pig iron.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic	\$20.00
Bessemer	21.00
Gray forge	20.00
No. 2 foundry.....	20.50
No. 3 foundry.....	20.00
Malleable	20.50
Low phosphorus, copper free.....	27.50

Ferroalloys.—Ferromanganese is firm as to price, but does not show a great deal of activity. Consumers, as for several weeks past, are merely buying what they must have to maintain a safe reserve supply and so far have shown no interest in their early 1926 requirements. Makers are not heavily obligated. Commercial producers of spiegeleisen are well sold against production over the remainder of this year and the first quarter of 1926, and now are firm as to prices and not over anxious for more business. New business in the

other ferroalloys is light, but prices are very firm. Prices are given on page 1341.

Semi-Finished Steel.—Several producers have announced a new schedule that establishes a differential between the large and small sizes of slabs and billets and between those forms and sheet bars. It is believed that the new method of quoting is an effort to remove the confusion that has existed for some time as to real prices for semi-finished steel and at the same time to adjust prices in relation to costs. There has been conflicting testimony as to whether it costs more to produce sheet bars than billets or slabs, but as a rule sheet bars have been rated higher than the other forms, although in the past year there has been little or no variation in the open market quotations. In the new schedule, sheet bars and small billets and slabs are bracketed at one price and billets, 4 in. and larger, and slabs, 8 in. x 2 in., the equivalent of 4 in. x 4 in. billets, are quoted \$1 per ton lower. Billets, 4 x 4 in., and slabs, 8 in. x 2 in., are quoted at \$34, Pittsburgh or Youngstown, small billets and slabs \$35, and sheet bars \$35. The market is firm at these levels, as all mills have all the business they want at \$33.50, in view of the stronger market in finished products, to say nothing of the recent advances in pig iron and scrap prices. In a general way, \$40, base, is the ruling price on forging quality steel, but there are deviations and sometimes on relatively small tonnages, one lot of 50 tons recently going as low as \$37, Pittsburgh. Wire rod sales are fairly numerous, but buying is far from pressing. Open market activity in skelp lags. Prices are on page 1341.

Wire Products.—General strength in the steel market is helping the demand for wire products, as it apparently convinces distributors and consumers that wire products are more likely to advance than decline in price. Accordingly they are placing orders and specifications with more freedom. Until recently, demand lagged except in plain wire, but in the past fortnight a rather good business has been developing in the other products. The end of the year is so close at hand that it is probable that purchases will now be made with an eye to year end inventories, but the trade expects a lively demand for early 1926 tonnages. Prices are given on page 1339.

Rails and Track Supplies.—The order book of the local maker of standard rails has been enlarged materially by recent awards, particularly by the release of the Pennsylvania Railroad tonnage. Real activity is lacking in light rails, but there is a better demand than earlier in the year and with the common trend of steel prices upward there is a tendency to ask higher prices for light rails. Rail accessory business is very promising. The Baltimore & Ohio inquiry for 3,000,000 tie plates will probably be placed soon and the New York Central will open bids Nov. 16, on from 3,000,000 to 5,000,000 tie plates and from 25,000 to 45,000 kegs of spikes. The Boston & Albany is seeking 7500 kegs of spikes. Small spikes are firm at \$3 per 100 lb. after going as low as \$2.90. Prices are on page 1339.

Tubular Goods.—Besides a continued good demand for standard pipe, due to favorable weather conditions for building work, the interesting feature of the week has been the placing of 140 miles of 10-in. pipe for a pipe line in Arkansas for the Crusader Line Pipe Co., Shreveport, La. The line, which requires 16,000 tons, was placed with the Continental Supply Co., St. Louis, a subsidiary of the Youngstown Sheet & Tube Co. There is no more activity in oil well goods than there usually is at this time of the year. Pipe mill operations hover about 75 per cent of capacity, but that rate is partly accounted for by production for stock. California pipe jobbers benefit from the fact that all makers now recognize the independent line rate of 30c. per 100 lb. on shipments via the Panama Canal, although some of them continue to ship in boats of companies subscribing to the so-called conference line rate, which is 45c. per 100 lb. The 30c. rate does not include Northern Pacific Coast ports, and jobbers in Seattle and other Northern ports have had delivered prices adjusted to only the difference between conference and independent line rates, which amounts to 5c. per 100 lb. or \$1 per ton. In connection with steel pipe discounts, THE

Prices of Finished Iron and Steel Products (Carload Lots)

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. P'gh mills.....	2.00c. to 2.10c.
F.o.b. Chicago.....	2.00c. to 2.10c.
Del'd Philadelphia.....	2.22c. to 2.32c.
Del'd New York.....	2.34c.
Del'd Cleveland.....	2.19c.
F.o.b. Birmingham.....	2.15c. to 2.25c.
C.i.f. Pacific ports.....	2.35c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills.....	2.00c. to 2.10c.
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Rail Steel

F.o.b. mill.....	1.80c. to 1.90c.
F.o.b. Chicago.....	2.00c. to 2.10c.

Iron

Common iron, f.o.b. Chicago.....	1.90c. to 2.00c.
Refined iron, f.o.b. P'gh mills.....	3.00c.
Common iron, eastern Pa. mill.....	2.10c.
Common iron, del'd New York.....	2.14c. to 2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill.....	1.85c. to 2.00c.
F.o.b. Chicago.....	2.10c.
F.o.b. Birmingham.....	1.90c. to 2.05c.
Del'd Cleveland.....	1.99c. to 2.09c.
Del'd Philadelphia.....	1.92c. to 2.12c.
Del'd New York.....	1.94c. to 2.14c.
C.i.f. Pacific ports.....	2.25c. to 2.30c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill.....	1.90c. to 2.10c.
F.o.b. Chicago.....	2.10c.
F.o.b. Birmingham.....	2.05c. to 2.15c.
Del'd Cleveland.....	2.09c. to 2.19c.
Del'd Philadelphia.....	2.12c. to 2.22c.
Del'd New York.....	2.14c. to 2.24c.
C.i.f. Pacific ports.....	2.30c. to 2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh.....	2.50c.
All gages, 6 in. and wider, P'gh.....	2.30c.
All gages, 6 in. and narrower, Chicago.....	2.60c.
All gages, wider than 6 in., Chicago.....	2.50c.

Cotton Ties

	Per 45-Lb. Bundle
F.o.b. Atlantic ports.....	\$1.28
F.o.b. Gulf ports.....	1.25

Cold-Finished Steel

	Base Per Lb.
Screw stock and shaft'g, f.o.b. P'gh mills.....	2.50c.
Screw stock and shaft'g, f.o.b. Chicago.....	2.50c.
Screw stock, Cleveland.....	2.55c.
Shafting, ground, f.o.b. mill.....	2.70c. to 3.00c.
Strips, f.o.b. P'gh mills.....	3.90c.
Strips, f.o.b. Cleveland mills.....	3.90c.
Strips, delivered Chicago.....	4.20c.
Strips, f.o.b. Worcester mills.....	4.05c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails.....	\$2.65
Galv'd nails, 1-in. and longer.....	4.65
Galv'd nails, shorter than 1 in.....	4.90
Galv'd staples.....	5.35
Polished staples.....	5.10
Cement coated nails, base, per count keg.....	1.85

	Base Per 100 Lb.
Bright plain wire, No. 9 gage.....	\$2.50
Annealed fence wire.....	2.65
Spring wire.....	3.50
Galv'd wire, No. 9.....	3.10
Barbed wire, galv'd.....	3.35
Barbed wire, painted.....	3.10

*Bale ties, carloads, to jobbers.....75, 15 and 6
*Bale ties, carloads, to retailers.....75, 10 and 6

Per Net Ton
Woven wire fence, base, to retailers.....\$65.00

Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., mill \$3 a ton higher on production of

that plant, and Duluth, Minn., mills \$2 a ton higher; Anderson, Ind., \$1 higher.

*F.o.b. Cleveland.

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh.....	2.40c.
Nos. 9 and 10, f.o.b. Ch'go dist. mills.....	2.50c.
Nos. 9 and 10, del'd Phila'phia.....	2.72c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh.....	3.25c.
No. 28, f.o.b. Ch'go dist. mill.....	3.35c.
No. 28, del'd Phila'phia.....	3.57c.

Galvanized

No. 28, f.o.b. Pittsburgh.....	4.50c.
No. 28, f.o.b. Ch'go dist. mill.....	4.60c.
No. 28, del'd Phila'phia.....	4.82c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh.....	3.25c.
No. 28, f.o.b. Chicago dist. mill.....	3.35c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh.....	4.40c.
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Long Ternes

No. 28, 8-lb. coating, f.o.b. mill.....	4.75c.
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Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills.....	\$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.....	5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)
(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base.....	\$11.20
20-lb. coating I.C.....	\$15.50
25-lb. coating I.C.....	17.00
30-lb. coating I.C.....	18.35
15-lb. coating I.C.....	14.35
40-lb. coating I.C.....	20.35

Rails

	Per Gross Ton
Standard, f.o.b. mill.....	\$43.00

	Base Per Lb.
Light (from billets), f.o.b. mill.....	1.65c. to 1.70c.
Light (from billets), f.o.b. Ch'go mill.....	1.80c. to 1.90c.
Light (from rail steel), f.o.b. mill.....	1.50c. to 1.60c.

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, $\frac{3}{4}$ in. and larger.....	\$2.80 to \$3.10
Spikes, $\frac{1}{2}$ in. and smaller.....	3.00 to 3.50
Spikes, boat and barge.....	3.25
Track bolts, all sizes.....	3.90 to 4.25
Tie plates, steel.....	2.35 to 2.50
Angle bars.....	2.75

Alloy Steel Bars

(F.o.b. Pittsburgh)

S. A. E. Series Numbers	Base Per 100 Lb.
2100* ($\frac{1}{2}$ % Nickel, 10 to 20% Carbon)	\$3.20 to \$3.30
2300 ($\frac{3}{4}$ % Nickel)	4.55 to 4.65
2500 (5% Nickel)	5.70 to 5.80
3100 (Nickel Chromium)	3.50 to 3.60
3200 (Nickel Chromium)	5.10 to 5.30
3300 (Nickel Chromium)	7.20 to 7.30
3400 (Nickel Chromium)	6.45 to 6.50
5100 (Chromium Steel)	3.60 to 3.70
5200* (Chromium Steel)	7.50 to 8.25
6100 (Chrom. Vanadium bars)	4.30 to 4.40
9250 (Chrom. Vanad. spring steel)	3.85
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanad.)	4.20 to 4.45
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.40 to 4.50
Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)	4.35 to 4.45
Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.50 to 3.75
Chromium Molybdenum spring steel (1—1.25 Chrom., 0.30—0.50 Molyb.)	4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for

cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2 $\frac{1}{2}$ -in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Welded Pipe

Base Discounts f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld		Iron	
Inches	Black	Inches	Black
$\frac{1}{4}$	45	$\frac{1}{4}$ to $\frac{1}{2}$	23
$\frac{1}{2}$ to $\frac{3}{4}$	51	$\frac{1}{2}$ to $\frac{3}{4}$	28
$\frac{3}{4}$	56	$\frac{3}{4}$	28
$\frac{1}{2}$ to $\frac{3}{4}$	60	1 to 1 $\frac{1}{2}$	30
1 to 3.....	62		13

Lap Weld		Iron	
Inches	Black	Inches	Black
2.....	55	2.....	23
2 $\frac{1}{2}$ to 6.....	59	2 $\frac{1}{2}$ to 6.....	26
7 and 8.....	56	3 to 6.....	28
9 and 10.....	54	7 to 12.....	26
11 and 12.....	53		11

Butt Weld, extra strong, plain ends		Iron	
Inches	Black	Inches	Black
$\frac{1}{4}$	41	2 to 3.....	61
$\frac{1}{2}$ to $\frac{3}{4}$	47	$\frac{1}{2}$ to $\frac{3}{4}$	+11
$\frac{3}{4}$	53	$\frac{3}{4}$	21
$\frac{1}{2}$ to $\frac{3}{4}$	58	$\frac{3}{4}$	26
$\frac{3}{4}$	58	$\frac{3}{4}$	12
1 to 1 $\frac{1}{2}$	60	1 to 1 $\frac{1}{2}$	30

Lap Weld, extra strong, plain ends

2.....	53	2.....	23
2 $\frac{1}{2}$ to 4.....	57	2 $\frac{1}{2}$ to 4.....	29
4 $\frac{1}{2}$ to 6.....	56	4 $\frac{1}{2}$ to 6.....	28
7 to 8.....	52	7 to 8.....	21
9 and 10.....	45	9 to 12.....	16
11 and 12.....	44		2

To the large jobbing trade the above discounts on steel pipe are increased (on black) by one point, with supplementary discount of 5% and (on galvanized) by 1 $\frac{1}{2}$ point, with supplementary discount of 5%. On iron pipe, both black and galvanized, the preferentials to large jobbers are 1, 5 and 2 $\frac{1}{2}$ % beyond the above discount.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base 2 $\frac{1}{2}$ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts f.o.b. Pittsburgh

Lap Welded Steel	Charcoal Iron
2 to 2 $\frac{1}{2}$ in.....	27
2 $\frac{1}{2}$ to 3 in.....	37
3 in.....	40
3 $\frac{1}{2}$ to 4 in.....	42 $\frac{1}{2}$
4 to 13 in.....	46
	1 $\frac{1}{2}$ in.....
	1 $\frac{1}{2}$ to 1 $\frac{1}{2}$ in.....
	2 to 2 $\frac{1}{2}$ in.....
	2 $\frac{1}{2}$ to 3 in.....
	3 $\frac{1}{2}$ to 4 $\frac{1}{2}$ in.....

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.....	60	3 in.....	45
1 $\frac{1}{2}$ to 1 $\frac{1}{2}$ in.....	52	3 $\frac{1}{2}$ to 3 $\frac{1}{2}$ in.....	47
1 $\frac{1}{2}$ in.....	36	4 in.....	50
2 to 2 $\frac{1}{2}$ in.....	31	4 $\frac{1}{2}$, 5 and 6 in.....	45
2 $\frac{1}{2}$ to 2 $\frac{1}{2}$ in.....	39		

Hot Rolled

2 and 2 $\frac{1}{2}$ in.....	34	2 $\frac{1}{2}$ and 3 $\frac{1}{2}$ in.....	50
2 $\frac{1}{2}$ and 2 $\frac{1}{2}$ in.....	42	4 in.....	53
3 in.....	48	4 $\frac{1}{2}$, 5 and 6 in.....	48

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing (New List)

	Per Cent off List
Carbon 0.10 to 0.30 base.....	50 to 55
Carbon 0.30 to 0.40 base.....	45 to 50
Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.	

IRON AGE is advised that billings are from the point producing the lowest delivered price and not from the point carrying the lowest freight rate to destination. The freight from Chicago district mills to a destination might be lower than from Lorain or Pittsburgh, but the difference in the basing discount might make the delivered price higher from Chicago than the other points. The boiler tube market still favors buyers. Discounts are given on page 1339.

Sheets.—Extremely heavy pressure for delivery by the users of automobile body sheets is the feature of the present market. Users of this grade, long used to prompt deliveries, cannot accustom themselves to promises of service in six or seven weeks, which is as early as any of the mills now can make delivery except at the expense of other business. The automobile companies had no stocks worth talking about when the demand for cars took such a decided turn for the better in the late summer and, lacking reserve stocks, they have been entirely dependent on mill deliveries to maintain production schedules. There seems to be a possibility of premium prices for early deliveries. The mills are heavily booked for the remainder of the year and are not anxious for more business except at the full quotations recently announced. Mills have had opportunities to take first quarter business at these prices, but are not disposed to take it formally. Prices are given on page 1339.

Tin Plate.—Most of the mills have enough business in sight to carry them through to the end of the year at the present rate of operations, which are at about 85 per cent of capacity. There is no positive word as to first quarter and first half of 1926 prices, but the announcement will probably be made by the leading producer late this week. On account of the high cost of tin and lead there may be some upward revision of terne plate prices, but the more common impression is that tin plate will hold at its present price of \$5.50 per base box, Pittsburgh.

Cold-Finished Steel Bars and Shafting.—The recent advance of \$2 a ton to a base of 2.50c., Pittsburgh, on ordinary tonnages has become fully established. A good business is being done. The leading maker of ground shafting has announced a new schedule of prices effective Nov. 7, now quoting 3c., base, per lb. mill, for 1 3/16-in. to 1 1/2-in. inclusive, in carload lots; 2.90c., base, for 1 9/16-in. to 1 7/8-in. inclusive; 2.80c., base, for 1 15/16-in. to 2 7/8-in. inclusive, and 2.70c., base, for 2 15/16-in. to 7-in. inclusive, plus extras dated March 10, 1924. Other prices are given on page 1339.

Steel and Iron Bars.—Makers of steel bars are taking a firmer price stand and on ordinary tonnages now want 2.10c., base, Pittsburgh, on such business as they can take for shipment this year or in the first quarter of next year. For large lots, 2c. is now the minimum quotation at mills in this district. Iron bars are steady at recent prices. Prices are given on page 1339.

Structural Steel.—The Carnegie Steel Co. now is quoting a range of 1.90c. to 2.10c., base, Pittsburgh, according to the size of the order. The price to large buyers is 1.90c., base, Pittsburgh, with 2c. the quotation on lots of 50 tons or more and 2.10c. the quotation on smaller tonnages. Independent companies are naming the same prices, but it takes sizable tonnages to bring out the lower quotation and on ordinary lots the ruling price is 2c., base, Pittsburgh. Prices are given on page 1339.

Plates.—Makers are tightening on prices and in this district 1.85c., base, Pittsburgh, now is the ruling minimum on the most desirable business. Some makers have set up 1.90c. as a minimum for large tonnages and want 2c. for the less attractive lots. Buyers are being given an opportunity to specify on old business, but protections are not being extended and new ones are not being given, especially for early 1926 delivery except at the higher prices. Prices are given on page 1339.

Hot-Rolled Flats.—All makers are well supplied with business and some are indifferent about additional obligations except at higher prices than now prevail. It is reported that some outside makers have gone to 2.60c., base, Pittsburgh, for narrow stock and to 2.40c.

for wide material, but makers in this district have not yet followed. Prices are given on page 1339.

Cold-Rolled Strips.—Order books are large and specifications are coming in freely, creating a situation that is the most favorable that makers have had since the early part of this year. The price is firm at 3.90c., base, Pittsburgh.

Bolts, Nuts and Rivets.—Bolt and nut orders are coming in very steadily to makers in this district and the idea that prices are more likely to advance than decline is responsible for some increase in the volume. Not much business yet has been done in rivets at the high prices recently established, but that is natural in view of the fact that buyers were given generous coverage at former prices on new business. The new prices are closely observed. Prices and discounts are given on page 1341.

Coke and Coal.—Coke prices have slumped in the past week. Spot furnace coke now is available at \$6 per net ton at ovens and foundry coke at \$7, a drop of \$2 a ton from prices a week ago. There has been an almost complete stoppage of Eastern buying of coke as a substitute for hard coal and with only a limited demand for metallurgical purposes, producers have found it necessary constantly to cut prices to find an outlet for the output built up on the expectations of a continued strong demand from the East. The Eastern terminals are so badly congested with loaded cars that railroads have established embargoes and there is the additional factor that mild weather lessened the actual demand in the East. Hundreds of loaded cars are on tracks at the Connellsville ovens and the situation has become very favorable to buyers. A steel company seeking 7500 tons a month for December, January and February shipment has secured 5000 tons a month at \$5.25 per net ton at ovens. *A week ago such tonnage could not have been placed at any less than the figure obtainable on Eastern business. Domestic sizes also have weakened and \$7 appears to be the limit as against \$10 a few weeks ago. Prices are on page 1341.

Old Material.—The market doesn't appear as strong on the steel works grades as it did a week ago. While there were small sales of heavy melting grades at \$20, a large tonnage, estimated at 25,000 to 30,000 tons, was placed in the past few days at \$19.50. The purchaser was a local steel company which recently banked a blast furnace to take advantage of the high coke market, and consequently had need of a large tonnage of scrap to replace the lost output in pig iron. The sale seems to have taken off the edge of the market, as it was believed that as small sales had been made at \$20, the next business of consequence would be at that price or higher. Coincident with the sale was the news that the steel in the November list of the Pennsylvania Railroad brought as much as \$20.50, delivered Pittsburgh district. Other steel works grades are slightly weaker and there are no consumers willing this week to pay more than \$15.50 for blast furnace scrap. The Norfolk & Western November list contains 17,510,000 lb., or about 7831 gross tons.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel.....	\$19.50
No. 1 cast, cupola size.....	\$18.00 to 18.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	21.00 to 22.00
Compressed sheet steel.....	18.00 to 18.50
Bundled sheets, sides and ends..	17.00 to 17.50
Railroad knuckles and couplers..	21.50 to 22.00
Railroad coil and leaf springs..	21.50 to 22.00
Low phosphorus blooms and billet ends	24.00 to 24.50
Low phosphorus plates and other material	23.00 to 23.50
Low phosphorus punchings.....	21.00 to 21.50
Railroad malleable	19.50
Steel car axles.....	23.50 to 24.00
Cast iron wheels.....	18.50 to 19.00
Rolled steel wheels.....	21.50 to 22.00
Machine shop turnings.....	15.00 to 15.50
Short shoveling turnings.....	15.50
Sheet bar crops.....	22.00 to 23.00
Heavy steel axle turnings.....	16.50 to 17.00
Short mixed borings and turnings	15.50
Heavy breakable cast.....	18.00 to 18.50
Stove plate	14.50 to 15.00
Cast iron borings.....	15.00 to 15.50
No. 1 railroad wrought.....	15.50 to 16.00
No. 2 railroad wrought.....	19.50

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over.....	\$34.00
Rolling, 2-in. and smaller.....	35.00
Forging, ordinary.....	40.00
Forging, guaranteed.....	45.00

Sheet Bars

	Per Gross Ton
Open hearth or Bessemer.....	\$35.00

Slabs

	Per Gross Ton
8 in. x 2 in.....	\$34.00
Smaller sizes.....	35.00

Skelp

	Per Lb.
Grooved.....	1.90c.
Sheared.....	1.90c.
Universal.....	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base, No. 5 to 3/4-in.....	\$45.00
Common soft, coarser than 3/4-in.....	\$2.50 over base
Screw stock.....	\$5.00 per ton over base
Carbon 0.20 to 0.40.....	3.00 per ton over base
Carbon 0.41 to 0.55.....	5.00 per ton over base
Carbon 0.56 to 0.75.....	7.50 per ton over base
Carbon over 0.75.....	10.00 per ton over base
Acid.....	15.00 per ton over base

*Chicago mill base is \$46. Cleveland mill base, \$45.

Raw Materials

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd.....	\$115.00
Foreign, 80%, Atlantic or Gulf port, duty paid.....	115.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%.....	\$32.00 to \$34.00
Domestic, 16 to 19%.....	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%.....	\$82.50 to \$85.00
75%.....	145.00 to 147.50

Bessemer Ferrosilicon

	Per Gross Ton
10%.....	\$38.00
11%.....	38.00

Silvery Iron

	Per Gross Ton
6%.....	\$26.50
7%.....	27.50
8%.....	28.50
9%.....	30.00

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd.....	\$1.15 to \$1.20
Ferrocromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered.....	\$1.50c.
Ferrovandium, per lb. contained vanadium, f.o.b. furnace.....	\$3.25 to \$4.00
Ferrocobaltititanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads.....	\$200.00
Ferrophosphorus, electrolytic, or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton.....	\$91.00
Ferrophosphorus, electrolytic, 24%, f.o.b. Anniston, Ala., per net ton.....	\$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines.....	\$16.00
No. 2 lump.....	19.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Philadelphia, duty paid, \$16.00 to \$17.00.....	
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2 1/4% silica, f.o.b. Illinois and Kentucky mines.....	\$32.50

Fire Clay

	Per 1000 f.o.b. Works
High Duty.....	
Moderate Duty.....	
Pennsylvania.....	\$43.00 to \$46.00
Maryland.....	48.00 to 50.00
Ohio.....	43.00 to 46.00
Kentucky.....	43.00 to 45.00
Illinois.....	43.00 to 45.00
Missouri.....	40.00 to 43.00
Ground fire clay, per ton.....	6.50 to 7.50

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania.....	\$40.00
Chicago.....	49.00
Birmingham.....	54.00
Silica clay, per ton.....	\$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.....	\$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.....	40.00

Chrome Brick

	Per Net Ton
Standard size.....	\$43.00

Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads.....	.60 and 10
Machine bolts, all sizes, cut threads.....	.50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads.....	.60, 10 and 10
Carriage bolts, cut threads, all sizes.....	.60 and 10
Eagle carriage bolts.....	.65 and 10
Lag bolts.....	.60, 10 and 10
Plow bolts, Nos. 3 and 7 heads.....	.50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, 3/4 x 4 in., 45, 10 and 5.....	
Larger and longer sizes.....	.45, 10 and 5
Bolt ends with hot-pressed nuts.....	.50, 10 and 10
Bolt ends with cold-pressed nuts.....	.45, 10 and 5
Hot-pressed nuts, blank and tapped, square, 4c. off list.....	
Hot-pressed nuts, blank or tapped, hexagons, 4.40c. off list.....	
C.p.c. and t. square or hex. nuts, blank or tapped.....	4.10c. off list
Washers.....	6.50c. to 6.25c. off list

*F.o.b. Chicago and Pittsburgh.
The discount on machine, carriage and lag bolts is 5 per cent less than above for less than car lots. On hot-pressed and cold-punched nuts the discount is 25c. less per 100 lb. than quoted above for less than car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
3/8 in. and smaller, U. S. S.....	.80 and 5
1/2 in. and larger, U. S. S.....	.75 and 5
Small sizes, S. A. E.....	.80, 10 and 5
S. A. E., 3/4 in. and larger.....	.75, 10 and 5
Stove bolts in packages.....	.80, 10 and 5
Stove bolts in bulk.....	.80, 10, 5 and 2 1/2
Tire bolts.....	.60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per 100 Net S.A.E. U.S.S.	Per 100 Net S.A.E. U.S.S.
1/4-in.....	\$0.54	\$0.54
3/8-in.....	0.615	0.615
1/2-in.....	0.72	0.76
3/4-in.....	0.89	1.00
1-in.....	1.11	1.15
1 1/4-in.....	1.48	1.32
1 1/2-in.....	1.80	1.83

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh.....	\$2.60
F.o.b. Cleveland.....	\$2.60 to 2.70
F.o.b. Chicago.....	2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh.....	.70, 10 and 5
F.o.b. Cleveland.....	.70 and 10 to 70, 10 and 5
F.o.b. Chicago.....	.70, 10 and 10

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws.....	.80 and 10
Milled standard set screws, case hardened.....	.80
Milled headless set screws, cut thread.....	.80
Upset hex. head cap screws, U. S. S. thread, 80, 10 and 10.....	
Upset hex. cap screws, S. A. E. thread, 80 and 10.....	
Upset set screws.....	.80, 10 and 10 to 80, 10 and 25
Milled studs.....	.70 and 5

Chicago

Pig Iron Advances \$1—Heavy Rail and Equipment Orders

CHICAGO, Nov. 10.—Ingot production of the leading interest is now at 84 per cent, with indications that it will reach 85 per cent before the end of the week. Another blast furnace has gone in at Gary, making 10 active stacks at that plant. With six stacks blowing at South Chicago and one at Joliet, the Steel Corporation now has 17 active furnaces out of a total of 27. Sales of finished products have shown a substantial increase over the previous week, even when rails are not figured in the total. Prices are firm and the pressure of demand is increasingly felt by the mills. Rail allotments for the week show that local producers booked 50,000 tons, and there are still about 10 major roads entering Chicago territory which have not yet placed contracts. The New York Central will soon open bids on about 25,000 tons of tie plates and approximately 45,000 kegs of spikes. The Missouri Pacific may soon contract for 3000 freight cars and the Santa Fe has made inquiry for 3000 refrigerator, box, furniture and coal cars. The Denver & Rio Grande Western has purchased 500 gondola cars and the Norfolk & Western is asking for prices on 43 passenger and baggage cars.

The local pig iron market, after advancing 50c. a ton early in the week, has shown added strength and is now quoted at a further advance of 50c. a ton, thus bringing the price of No. 2 foundry to \$23, local furnace. Demand is steady and foundry melt is readily absorbing shipments. The coal situation is once again reflected in the price of coke, which was advanced this week.

Pig Iron.—The market is firm at \$23, local furnace, for No. 2 Northern foundry. This represents an advance of \$1 a ton over the price prevailing during the first of last week. The early advance of 50c. a ton held for several days only and now both spot buying and contracts are going freely at the higher figure. Indications are that production is just keeping abreast of consumption and dealers believe that the market is in a healthy condition with practically no evidence of speculation coming to light. It is reported from some quarters that foundries making castings for the automobile trade have slackened their pace somewhat. They are still specifying liberally, however, and apparently are taking advantage of a lull in automobile sales to build up their stocks of pig iron, which have been reported as slightly below normal for some time. Silvery has also advanced and is now quoted at \$29.50, Jackson County, or \$34.29, delivered, Chicago, for the 8 per cent grade.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards:

Northern No. 2 foundry, sil. 1.75 to 2.25	\$23.00
Northern No. 1 foundry, sil. 2.25 to 2.75	23.50
Malleable, not over 2.25 sil.	23.00
High phosphorus	23.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	\$26.01 to 27.01
Southern No. 2 (barge and rail)	24.18 to 25.18
Low phos., sil. 1 to 2 per cent copper free	31.20 to 31.60
Silvery, sil. 8 per cent	34.29
Ferrosilicon, 14 to 16 per cent	45.25 to 45.75

Plates.—The Santa Fe has entered the market for 3000 freight cars of various types. These and the inquiry of the New York Central, together with 3000 for the Missouri Pacific and 750 for the Denver & Rio Grande Western, represent a total of nearly 11,000 cars, for which 110,000 tons of plates, shapes and bars will be required. The Pullman Car & Mfg. Corporation has taken 500 underframes for the Monon and the Great Northern has placed the same number of underframes with the Siems-Stembel company. The Missouri-Kansas-Texas is said to have decided to build 500 automobile cars in its own shops. The Graver Corporation has taken a contract for 75 tanks

for the Marland Refining Co., Ponca City, Okla., requiring 3600 tons of steel, which is said to have been placed with a local producer. Another local plate maker has booked 5000 tons of tank steel. Estimates from various sources indicate that fully 15,000 tons of tank work is still before the trade. Deliveries on universal plates from local mills are reported as being about six weeks, while shipments on sheared plates are approximately five weeks. Plates are very firm at 2.10c., Chicago.

The mill quotation is 2.10c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Bars.—Demand for mild steel bars continues to grow and local mills are said to have backlogs which extend to the first of the year. The use of this commodity is widely extended and practically all users are sending in liberal specifications. New business is well in excess of shipments. Soft steel bars are unchanged, but very firm, at 2.10c., Chicago. Rail steel bar makers are building up substantial backlogs and deliveries are in the neighborhood of six weeks. Farm implement manufacturers and fence post makers are consistent buyers. Mill operations are unchanged with one maker running double turn. Rail steel bars range from 2c. to 2.10c., Chicago, with a decided tendency to become firm at the higher figure. Railroads are now placing more liberal specifications for bar iron and mills report increased business during the past week. Makers of farm machinery have also increased their demands for this commodity. The market ranges from 1.90c. to 2c., Chicago, although the lower price has practically disappeared.

Mill prices are: Mild steel bars, 2.10c.; common bar iron, 1.90c. to 2c., Chicago; rail steel bars, 2c. to 2.10c., Chicago.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold rolled steel bars and shafting are 3.60c. for rounds and hexagons and 4.10c. for flats and squares; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c.

Wire Products.—Both new business and specifications continue to be received at an unabated rate. Mills having increased operations slightly, find that demands have become more insistent and thus have not been able to augment stocks, which are at a low point. Demands placed upon the trade by manufacturers indicate that shipments are going into current production and that users' stocks are still low. Although new business is coming from all parts of the country, there is a noticeable increase in buying from the Southwest and Mountain States. Mill prices, which are steady, are shown on page 1339.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed wire, \$3.05 per 100 lb.; common wire nails, \$3.05 per keg; cement-coated nails, \$2.05 to \$2.20.

Rails and Track Supplies.—Local producers estimate that a total of about 700,000 tons of rails and fastenings will be awarded in this district. Of this amount, 75 per cent has already been contracted. The Pennsylvania placed 160,000 tons of rails, distribution of which is given elsewhere in this issue. The Santa Fe entered the market for 94,000 tons and placed 74,000 tons with the Colorado Fuel & Iron Co., leaving 20,000 tons still to be disposed of. The Baltimore & Ohio contracted for 85,000 tons, of which 35,000 went to the Bethlehem Steel Co. and 7000 tons to the Illinois Steel Co. The Texas & Pacific is said to have placed 25,000 tons with the Tennessee Coal, Iron & Railroad Co., and the Missouri Pacific, after placing 10,000 tons with the Illinois Steel Co., will probably divide the remaining 30,000 tons between the Colorado Fuel & Iron Co. and the Tennessee company. New inquiries include 15,000 tons for the Wabash and 50,000 tons for the Nashville, Chattanooga & St. Louis. The Pere Marquette and the Grand Trunk are said to be about ready to enter the market. Of 15,000 tons inquired for, the Cotton Belt placed 4100 tons with a local producer. One of the larger local railroads has released 10,000 tons against an existing contract. The New York Central as yet has purchased no track fastenings, but is said to be actively in the market. There has been little demand during the week for light rails.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled from billets, 1.80c. to 1.90c., f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c. mill; track bolts with square nuts, 3.90c. to 4c. mill; steel tie plates, 2.25c. to 2.35c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.55c., base, and track bolts, 4.55c., base.

Sheets.—Sheet prices have remained unchanged during the week and users are contracting freely at the figures quoted. Mills are working well up to capacity and are said to be booked to about the first of the year. Jobbers have advanced black to 4.10c., base, and galvanized to 5.25c.

Chicago delivered prices from mill, 3.40c. for No. 28 black, 2.55c. for No. 10 blue annealed and 4.65c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.50c. base for blue annealed, 4.10c. base for black, and 5.25c. base for galvanized.

Structural Material.—Structural steel awards have been well maintained and new inquiries indicate that this market is still very active. In all, about 5000 tons of steel were placed during the week and fresh projects total 8500 tons. The outstanding contracts for the week were 1910 tons for the Wabash-Monroe Building, Chicago, to the Duffin Iron Works, and 800 tons for the Fisher Body Corporation, Memphis, Tenn., to the Virginia Bridge & Iron Co. The largest new inquiry is for 3000 tons for the Bell Telephone Co., at Detroit. In Chicago 1200 tons will be required for the new Eitel Hotel. Deliveries on shapes have extended somewhat. Plain material is strong at 2.10c., Chicago.

The mill quotation on plain material is 2.10c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Bolts, Nuts and Rivets.—Demand for these commodities is holding and makers are operating at an unchanged rate. The local trade anticipates that books will be opened for first quarter soon. Warehouse prices and discounts on bolts and nuts have advanced slightly.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.70c.; machine bolts up to $\frac{3}{4}$ x 4 in., 50 and 5 per cent off; larger sizes, 50 and 5 off; carriage bolts up to $\frac{3}{4}$ x 4 in., 47½ off; larger sizes, 47½ off; hot-pressed nuts, square, tapped or blank, \$3.25 off; hot-pressed nuts, hexagon, tapped or blank, \$3.75 off; coach or lag screws, 50 and 5 per cent off.

Cast Iron Pipe.—With the approach of winter, inquiries are slowing up and contracts are small. The price, however, for 6-in. and larger pipe in the Chicago district is firm at \$42, base Birmingham. The National Cast Iron Pipe Co. has closed two contracts during the week at the current quotations. These were 1100 tons for Clarendon Hills, Ill., and 450 tons for Muskegon, Mich. Bids for Staunton, Ill., have been rejected and it is understood that the job will be readvertised. Kohlsaat Brothers were the low bidders, on 370 tons of 6 and 8-in. Class B and 12-in. Class C pipe for Melvindale, Mich.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., \$54.20; 6-in. and over, \$50.20; Class A and gas pipe, \$4 extra.

Ferroalloys.—Demand has not changed materially and prices remain the same.

Cold-Finished Steel Bars.—Requirements of users have increased and the price of screw stock and shafting is firm at 2.50c., base Chicago.

Reinforcing Bars.—The usual fall decline in lettings and inquiries is at hand. A number of good tonnage inquiries have been deferred until spring and several others have been recalled and are being refigured, which means that the contracts will probably not be placed until after the first of the year. Inquiries and lettings during the week have been for the most part small, requiring less than 100 tons each. Several bending shops have slightly reduced their operating forces. The warehouse price of billet steel reinforcing bars is unchanged at 2.60c., Chicago. Lettings include:

Bath house, Twelfth Street and Kedzie Avenue, Chicago, 100 tons of rail steel to the Calumet Steel Co.

Adams Street bridge footings, Chicago, 100 tons to Barton Spiderweb System, Inc.

Seneca Hotel, Chicago, 700 tons to the American System of Reinforcing.

Thomas Jefferson High School, Indianapolis, 275 tons to the Truscon Steel Co.

Woodruff Ice & Cold Storage Co., Peoria, Ill., 100 tons of rail steel to the Laclede Steel Co.

Burnham Apartment Building, Chicago, 600 tons to the American System of Reinforcing.

West Suburban Hospital, Oak Park, Ill., 500 tons to the Concrete Engineering Co.

Public school, Wellington and McVicar Streets, Chicago, 170 tons to Olney J. Dean & Co.

Public school, Seminole and McVicar Streets, Chicago, 160 tons to Concrete Engineering Co.

Pending business includes:

St. Vincent's School, Chicago, 100 tons.
North Moor Hotel, Chicago, 500 tons.

Coke.—Foundry coke has again advanced in the local market and is now 25c. higher, or \$11, delivered, in the Chicago switching district.

Old Material.—This market is slightly more active and the prices of a number of specialties have advanced. Dealers are quoting \$16.50 a gross ton for heavy melting steel, and an independent steel mill is reported to have bought several thousand tons of that material at that price. The market appears to be highly speculative in view of the fact that one railroad sold heavy melting steel at \$17.64 a gross ton, delivered. Dealers are disinclined to sell from stock and the bulk of tonnage going is that which appears on track. A local user is bidding 25c. below the market on certain grades of malleable and cast scrap, but has not been able to get dealers to fill his requirements at those figures. Sellers are inclined to think that this user is well stocked to the end of the year and will only take tonnage at the lower prices as a speculative measure. Railroad offerings include: Norfolk & Western, 8700 tons; Great Northern, 3500 tons; Northern Pacific, 2500 tons; Chesapeake & Ohio, 8500 tons, and the Wabash, 2000 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

Per Gross Ton	
Iron rails	\$18.50 to \$19.00
Cast iron car wheels	18.25 to 18.75
Relaying rails, 56 lb. to 60 lb.	25.00 to 26.00
Relaying rails, 65 lb. and heavier ..	28.00 to 31.00
Forged steel car wheels	20.00 to 20.50
Railroad ties, charging box size ..	19.50 to 20.00
Railroad leaf springs, cut apart ..	19.75 to 20.25
Rails for rolling	19.50 to 20.00
Steel rails, less than 3 ft.	19.75 to 20.25
Heavy melting steel	16.00 to 16.50
Frogs, switches and guards, cut apart	18.50 to 19.00
Shoveling steel	16.00 to 16.25
Drop forge flashings	12.00 to 12.50
Hydraulic compressed sheets	14.50 to 15.00
Axle turnings	14.50 to 15.00
Steel angle bars	19.50 to 20.00
Steel knuckles and couplers	18.75 to 19.25
Coil springs	20.00 to 20.50
Low phos. punchings	18.00 to 18.50
Machine shop turnings	10.00 to 10.50
Cast borings	13.25 to 13.75
Short shoveling turnings	13.25 to 13.75
Railroad malleable	19.25 to 19.75
Agricultural malleable	18.00 to 18.50

Per Net Ton	
Iron angle and splice bars	18.25 to 18.75
Iron arch bars and transoms	21.50 to 22.00
Iron car axles	27.00 to 27.50
Steel car axles	18.00 to 18.50
No. 1 busheling	13.00 to 13.50
No. 2 busheling	9.50 to 10.00
Pipes and flues	11.00 to 11.50
No. 1 railroad wrought	15.75 to 16.25
No. 2 railroad wrought	14.50 to 14.75
No. 1 machinery cast	18.25 to 18.75
No. 1 railroad cast	17.50 to 18.00
No. 1 agricultural cast	17.25 to 17.75
Locomotive tires, smooth	16.50 to 17.00
Stove plate	15.50 to 16.00
Grate bars	15.50 to 16.00
Brake shoes	14.75 to 15.25

Operating at 90 Per Cent at Youngstown

YOUNGSTOWN, Nov. 10.—Iron and steel production averages fully 90 per cent in this district. Of 67 open hearth furnaces 62 are active. Of sheet mills 119 are operating out of a total of 127 independent units and 131 out of 137, including the Steel Corporation sheet mills in this area. With the exception of several tin mills of the American Sheet & Tin Plate Co., which are down for repairs or overhauling, all tin mills are active, though the tin plate industry is running into its normally off-season.

San Francisco

Buying Expands as Prices Stiffen—Pipe Lines to Take Large Plate Tonnage

SAN FRANCISCO, Nov. 7 (*By Air Mail*).—Heavier buying in nearly all departments of the market, fresh inquiries for structural material and plates, and advances of \$2 a ton on blue annealed and black sheets are the chief features of the week's developments. In view of the recent advances in pig iron in the Eastern markets, and the firmer stand that Eastern mill representatives have taken on prices generally during the past two weeks, local buyers have apparently reached the conclusion that a general upward price movement is imminent. This may account for the recent increase in the number of orders and inquiries, which, however, are still individually small.

Pig Iron.—Buying for the most part is restricted to small lots. Prices are firmer, but no advances have been made on Utah or on any of the imported irons. Some of the larger users are understood to have contracted for their first quarter requirements. The price situation in the Eastern markets is being closely watched, particularly with respect to its effect on the prices of iron and steel products generally.

*Utah basic	\$27.00 to \$28.00
*Utah foundry, sil. 1.75 to 2.25	27.00 to 28.00
*English foundry	26.00
*Belgian foundry	24.50 to 25.00
*Dutch foundry	24.00
*Indian foundry	24.00 to 25.00
*German foundry	25.00

*Delivered San Francisco.

**Duty paid, f.o.b. cars San Francisco.

Shapes.—Structural lettings for the week total 1105 tons. Fresh inquiries call for about 3000 tons. Plans are being made, and bids are expected to be called for in about two months, for an office building on Sutter and Montgomery Streets, San Francisco, which will require 6000 tons. About 2200 tons will be placed early in December by the Washington Highway Commission, Olympia, Wash., for the Vantage Ferry Bridge across the Columbia River between Kittitas and Grant Counties on the North Central Highway. The largest individual letting of the week in San Francisco, 300 tons for the Temple Emanu-El addition, was awarded to Dyer Brothers, and the largest award in southern California, 300 tons, for an office building in San Bernardino, was taken by the Union Iron Works. Eastern mill quotations are firm at 2.30c. to 2.35c., c.i.f. Coast ports.

Plates.—While prices are somewhat firmer at 2.25c. to 2.30c., c.i.f. Coast ports, few Eastern mills have found it possible to book desirable business at more than 2.25c. The city of San Diego, Cal., is expected to call for bids in the near future on about 5000 to 10,000 tons for 26 miles of pipe line, which will be constructed from a proposed El Capitan Dam to San Diego. A bond issue of \$4,500,000 has been voted by the people of the city to finance the project, \$1,000,000 of which will be used for the pipe line, and the remainder, \$3,500,000, for the construction of the El Capitan Dam. Bids have closed on the 1500 tons required for a penstock job by the San Joaquin Light & Power Co., Fresno, Cal., and awards possibly will be made during the coming week. The East Bay Water Co., Oakland, Cal., has awarded 300 tons to the Steel Tank & Pipe Co., and 75 tons to the Western Pipe & Steel Co. for a pipe line. A referendum in Marin County, Cal., Oct. 29, resulted in a bond issue of \$1,500,000 being voted for a county water system which will require an estimated minimum of 1500 tons for a pipe line.

Bars.—Indications point to a more stable situation in jobbers' prices on reinforcing bars. Several jobbers are now quoting 2.90c. to 2.95c. per lb. on 250-ton lots, 3.10c. on carload lots, and 3.35c. to 3.40c. on less-than-carload lots. Only two jobs that call for 100 tons are known to have been closed—an addition to the Temple Emanu-El, Arguello Boulevard, San Francisco, and an office building on Post Street, San Francisco. Both were awarded to the Truscon Steel Co.

Rails and Track Supplies.—The Key System Transit Co., Oakland, Cal., has awarded three carloads of track specialties to the United States Steel products Co.

Nails.—The Standard Oil Co. of California has placed 3000 kegs of cement coated nails, which represents its quarterly requirements, with an unnamed mill.

Warehouse Business.—Local jobbers report somewhat heavier buying and a larger number of inquiries. Warehouse prices on sheets have been raised in conformity with the recent advances of \$4 a ton on galvanized sheets and \$2 a ton on black and blue annealed sheets put into effect by all of the principal producers.

Merchant bars, \$3.30 base, per 100 lb.; merchant bars, $\frac{3}{4}$ in. and under, rounds, squares and flats, \$3.80 base, per 100 lb.; soft steel bands, \$4.15 base, per 100 lb.; angles, $\frac{3}{4}$ in. and larger x $1\frac{1}{2}$ in. to 2 $\frac{1}{2}$ in., inc., \$3.30 base, per 100 lb.; channels and tees, $\frac{3}{4}$ in. to 2 $\frac{1}{2}$ in., inc., \$3.90 base, per 100 lb.; angles, beams and channels, 3 in. and larger, \$3.30 base, per 100 lb.; tees, 3 in. and larger, \$3.30 base, per 100 lb.; universal mill plates, $\frac{1}{4}$ in. and heavier, stock lengths, \$3.30 base, per 100 lb.; spring steel, $\frac{1}{4}$ in. and thicker, \$6.30 base, per 100 lb.; wire nails, \$3.50 base, per 100 lb.; cement coated nails, \$3 base, per 100 lb.; No. 10 blue annealed sheets, \$3.75 per 100 lb.; No. 28 galvanized sheets, \$6 per 100 lb.; No. 28 black sheets, \$4.75 per 100 lb.

Steel Pipe.—The Honolulu Oil Co. has awarded 1000 tons of standard black line pipe to the Petroleum Equipment Co. The city of San Francisco has awarded 489 tons of standard black line pipe for the Hetch Hetchy water system to the Republic Supply Co. The city of Los Angeles has awarded 165 tons of standard galvanized line pipe to the Crane Co.

Sheets.—Advances of \$2 a ton on black and blue annealed sheets have been made effective during the week. Blue annealed sheets are now quoted at 2.40c. base, Pittsburgh, and black sheets at 3.25c. As reported a week ago, galvanized sheets were advanced \$4 a ton and are now quoted at 4.50c., Pittsburgh. Most of the local buyers are understood to have covered their requirements before the advances were put into effect.

Cast Iron Pipe.—Newport Beach, Cal., will close bids Nov. 23 for 1445 tons of 6 to 20-in. class B, and Sunnyvale, Cal., will close bids Dec. 7 for about 200 tons of 4 and 6-in. B. Prices are unchanged at \$50 base, water shipment, San Francisco, although, as reported a week ago, one Eastern producer is quoting \$52.50, laid down in San Francisco. Among the recent lettings are the following:

Eureka, Cal., 8-in. B, 107 tons, to American Cast Iron Pipe Co.

Redwood City, Cal., 8-in. B, 105 tons, to an unnamed company through E. W. Redman, general contractor.

Alhambra, Cal., 14-in. B, 105 tons, to United States Cast Iron Pipe & Foundry Co.

Santa Ana, Cal., 4 and 6-in. B, 188 tons, National Cast Iron Pipe Co. low bidder.

Coke.—Interest has fallen off somewhat and sales are confined mainly to small lots. Prices, though firm, are unchanged. Local importers quote as follows:

English beehive, \$15 to \$16 at incoming dock, and English by-product, \$12 to \$14; German by-product, \$11.50 to \$12.

Old Material.—Buying is steadier, but not notably heavy. Prices are firm.

Prices for scrap delivered to consumers' yards are as follows:

Per Gross Ton	
No. 1 heavy melting steel	\$11.50 to \$12.00
Scrap rails, miscellaneous	11.50 to 12.00
Rolled steel wheels	11.50 to 12.00
Couplers and knuckles	11.50 to 12.00
Mixed borings and turnings	6.00 to 6.50
Country mixed scrap	8.00 to 8.50
No. 1 cast scrap	19.50 to 20.00

Employment in iron and steel plants in September is reported by the Bureau of Labor Statistics at 267,468 men in 208 plants. The increase over August was 0.6 per cent. The payroll showed a slight falling off, from \$7,792,079 to \$7,677,704 in one week. Compared with September, 1924, there was an increase of 9.7 per cent in the number on the payroll and an increase of 11.5 per cent in the total amount of the payroll.

Boston

Demand for Pig Iron Is Light but Scrap Market Is Active

BOSTON, Nov. 10.—Buying of pig iron has declined to small proportions. Quotations on domestic iron are firmer, and those on Indian and Dutch iron have been advanced. German iron, however, is still comparatively cheap, offers being made the past week at \$21.50 on dock, duty paid Boston. Sales of Indian iron were made recently at \$23.50 on dock, duty paid, or about \$25.55 delivered, representing an advance of about 50c. a ton. No Dutch iron is reported offered at less than \$24 on dock, duty paid. Buying of domestic iron largely represents filling-in business, some of it for the last and some for the first quarter. Buffalo district iron is now \$21 to \$22, base furnace, as against \$21 a week ago. A Virginia furnace last week took some business at \$24, base furnace, and then withdrew. Local imports of pig iron for October were 6264 tons, of which 4253 tons was from India with the rest Continental iron. Importations in September were 6747 tons. For the 10 months ended with October they aggregated 79,719 tons, including 50,946 tons Indian, 27,523 tons Continental, 750 tons English and 500 tons Scotch.

We quote delivered prices on the basis of the latest sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25.....	\$25.65
East. Penn., sil. 2.25 to 2.75.....	26.15
Buffalo, sil. 1.75 to 2.25.....	\$25.91 to 26.91
Buffalo, sil. 2.25 to 2.75.....	26.41 to 27.41
Virginia, sil. 1.75 to 2.25.....	29.92
Virginia, sil. 2.25 to 2.75.....	30.42
Alabama, sil. 1.75 to 2.25.....	30.60
Alabama, sil. 2.25 to 2.75.....	31.10

Shapes and Plates.—The market on plates is lower at 1.965c. per lb., delivered, or 1.60c. base Pittsburgh. Mills are giving buyers considerable protection on prices. Shapes are 2.265c. to 2.365c. per lb., delivered, or 1.90c. to 2c., base Pittsburgh, with 2.265c. predominating. Boston has awarded two ferryboats to the Bethlehem Shipbuilding Corporation, Ltd., requiring approximately 1160 tons of steel, of which 60 per cent will be plates. Most of the jobs being figured on here involve less than 100 tons each.

Cast Iron Pipe.—Manchester, N. H., recently closed bids on 300 tons of 8-in. to 24-in. pipe, but no award has been made. It is reported that a large Connecticut gas company is feeling out the market on 4000 tons of gas pipe for spring delivery. Because of the strength of pig iron and coke prices, pipe makers' views on prices are somewhat firmer. Prices quoted openly on domestic cast iron pipe follow: 4-in., \$60.10 a ton, delivered at Boston common freight rate points; 6-in. to 16-in., \$56.10; 20-in. and larger, \$55.10.

Coke.—The Providence Gas Co. has advanced its price on by-product foundry coke 50c. a ton to \$13, delivered within a \$3.10 freight rate zone, thereby meeting the New England Coal & Coke Co.'s price. The latter company is about up to schedule on foundry coke shipments but is limiting supplies to the melters' actual requirements. Efforts by foundries to accumulate surplus stocks are unavailing. The company's price on crushed coke is \$11.25 on cars at ovens, contrasted with \$10.25 a short time ago. The market for Connellsville district coke is less active but Troy, N. Y., coke is moving into this market. The Troy ovens recently sold a barge load of domestic coke at \$14 a ton, delivered New York.

Old Material.—Old material is moving more freely, particularly that used by steel mills. Heavy melting steel the past week was sold for Phillipsdale, R. I., and Worcester, Mass., delivery at around \$12.50 to \$12.75 on cars, and for Pennsylvania delivery at \$13 to \$13.50. At least one firm is bidding \$13.75 for railroad steel for western Pennsylvania delivery. Pipe is bringing \$12 to \$12.50 on cars, an advance of 50c. a ton, while rolling mill borings are easily 25c. higher at \$9.50 to \$9.75. For average lots of forged scrap, flashings and skeleton, \$10 to \$10.50 on cars is paid, but sales are reported at \$10.60. One central Massachusetts shop is said to have obtained \$12.50 on cars for chemical borings but

that price appears to be out of line with quotations made here. Shafting is being sold for Portland, Me., and eastern Pennsylvania delivery at around \$22.50, delivered, or \$18.50 to \$19 on cars here, an advance of 50c. a ton. The Boston & Maine Railroad yesterday closed bids on a round tonnage of relaying rails.

The following prices are for gross ton lots delivered consuming points:

Textile cast	\$20.00 to \$20.50
No. 1 machinery cast.....	19.50 to 20.00
No. 2 machinery cast.....	15.50 to 16.50
Stove plate	13.50 to 14.25
Railroad malleable	19.00 to 19.50

The following prices are offered per gross ton lots f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$13.00 to \$13.50
No. 1 railroad wrought.....	12.50 to 13.00
No. 1 yard wrought.....	11.50 to 12.00
Wrought pipe (1 in. in diameter, over 2 ft. long).....	12.00 to 12.50
Machine shop turnings.....	9.60 to 10.00
Cast iron borings, chemical.....	11.50 to 12.00
Cast iron borings, rolling mill.....	9.50 to 9.75
Blast furnace borings and turnings	9.25 to 9.75
Forged scrap	10.00 to 10.50
Bundled skeleton, long.....	10.00 to 10.50
Forged flashings	10.00 to 10.50
Bundled cotton ties, long.....	10.00 to 10.25
Bundled cotton ties, short.....	10.00 to 10.50
Shaftings	18.50 to 19.00
Street car axles	18.00 to 18.50
Rails for rerolling.....	14.00 to 14.25
Scrap rails	12.50 to 13.00

Birmingham

Republic Stack Blown In—Steel Deliveries Lengthen—Scrap Advances

BIRMINGHAM, Nov. 10.—Sales of foundry pig iron for delivery before the end of the year are bringing \$22, base Birmingham, while first quarter business commands \$21. An advance to \$22 for all deliveries is regarded as an early possibility. Shipments are being pushed in some instances because melters are apprehensive of a car shortage. Inquiries for the second quarter of the coming year have been reported, but so far no quotations have been made and no tonnage has been booked for that delivery. Indications are that a large proportion of current business is coming in without solicitation. Surplus stocks of foundry iron at furnaces are down to a minimum and obligations are being discharged largely from current production. One of the five blast furnaces scheduled to go in before the end of the year is now producing, this being a Republic Iron & Steel Co. stack. A Sloss-Sheffield Steel & Iron Co. furnace at Gadsden, Ala., is being dried out, but is not expected to get into production until next week. A Sheffield, Ala., furnace of the same company and the Holt, Ala., stack of the Central Iron & Coal Co. will go in next month, while the Tennessee company will then have all six of its Ensley furnaces in operation on basic. More iron is being shipped from Alabama to outside territories than for a long period. Local consumption promises to be steady for some time to come. Pressure pipe makers have orders from territories where the weather is not so extreme as to interfere with pipe laying. Other foundries are also booking business which will provide active work through the winter. With the exception of the larger melters, consumers in the home territory have not bought for much longer than the next 30 days.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.....	\$21.00 to \$22.00
No. 1 foundry, 2.25 to 2.75 sil.....	21.50 to 23.00
Basic	21.00
Charcoal, warm blast.....	\$30.00 to 32.00

Rolled Steel.—Certain forms of steel are not being produced rapidly enough and deliveries, it is said, are falling behind. Railroad embargoes in Florida continue to interfere with the operations of steel fabricators. Mills rolling rails and track accessories will remain busy for several months to come. Considerable steel is being placed by tank works, welding plants, structural steel fabricators and other industries in this district, all of which are operating at close to capacity. Soft steel bars are quoted at 2.15c. to 2.25c., Birmingham.

Cast Iron Pipe.—Shipments of cast iron pressure

pipe equal production with shops here running practically full. The recent advance to \$42, Birmingham, for 6-in. and larger pipe has not had an adverse effect on business.

Coke.—Demand is active and orders are being filled as promptly as railroad cars can be obtained. In the coal fields here car shortage is being felt, many mines losing a day a week because of lack of equipment. Alabama coke is finding its way into new territory and it is hoped that connections now being made will prove permanent. Alabama coke is firm at from \$5.75 to \$6 per ton, ovens. The best of feeling prevails among employers and employees in the coal and coke operations of this district.

Old Material.—Various grades of scrap are in strong demand. Current advances are not expected to check buying. Dealers have a large tonnage to deliver before the end of the year, and are accumulating material as fast as they can prepare same and ship it against their obligations.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical.....	\$15.00 to \$16.00
Heavy melting steel.....	14.00 to 14.50
Railroad wrought.....	13.00 to 13.50
Steel axles.....	19.00 to 20.00
Iron axles.....	18.00 to 19.00
Steel rails.....	14.00 to 14.50
No. 1 cast.....	17.00 to 17.50
Tramcar wheels.....	17.00 to 17.50
Car wheels.....	16.00 to 16.50
Stove plate.....	14.00 to 14.50
Machine shop turnings.....	8.00 to 8.50
Cast iron borings.....	8.00 to 8.50
Rails for rolling.....	17.50 to 18.00

Cincinnati

Sheet Buying Heaviest of Year—Large Coke Sales but Pig Iron Demand Subsides

CINCINNATI, Nov. 10.—Pig iron sales for the past week, at approximately 10,000 tons, mark a recession from recent activity. The decline in business is attributed to the reluctance of furnaces to book orders for 1926 delivery because of uncertainty regarding coke prices. Producers have sold all of the iron that they can ship in the next two months and consequently are desirous of learning definitely what their fuel costs will be before actively soliciting orders for later delivery at present quotations. The rise in the price of Northern foundry iron in the Ironton district has been halted at \$21, base Ironton. Tennessee iron has been sold in small lots at \$20, base Birmingham. No Alabama iron, with the exception of high phosphorus grades, is available for delivery this year and furnaces are asking \$21, base Birmingham, for first quarter. Jackson County silvery producers are well fortified with commitments and quotations have not changed. Malleable iron is showing strength. One sale of 1500 tons to an Indiana melter at \$21, base Ironton, is noted. Some Valley iron has moved into this territory in the past week, two sales totaling 1100 tons causing considerable comment. It is reported that the Hamilton Foundry & Machine Co., Hamilton, Ohio, has purchased 1500 tons of Northern foundry iron. Only a few scattered inquiries are before the trade. A local dealer has sold 250 tons of ferromanganese. Sellers believe that the reduced rates on pig iron from Birmingham to Cincinnati and other Ohio River crossings, effective Dec. 3, will have little immediate influence on the volume of iron shipped from Alabama into this territory. Southern producers are quoting prices at furnace which equal those of companies in the Ironton district and the latter will still have a rate advantage of \$1.42 to Cincinnati.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base).....	\$25.05
Alabama fdy., sil. 2.25 to 2.75.....	25.55
Tennessee fdy., sil. 1.75 to 2.25.....	24.05
Southern Ohio silvery, 8 per cent	30.77
Southern Ohio fdy., sil. 1.75 to 2.25.....	23.27
Southern Ohio, malleable.....	23.27

Sheets.—Despite an advance in prices, activity in sheets has set a high mark for the year. The buying movement which has extended over the past three weeks is believed to have reached its crest, because practically all consumers have covered their needs for the remainder of the year and mills have not yet opened their books for the first quarter. Sellers look for another rush of orders when producers accept business for 1926 delivery. Galvanized sheets are firmly established at 4.50c., base Pittsburgh, with a strong possibility of an advance in the near future. Mills declare that the high price of spelter is forcing up quotations on galvanized sheets. Demand for blue annealed sheets is above normal and prices are steady at 2.40c., Pittsburgh. There is a perceptible improvement in sales of black sheets, which are bringing 3.25c., Pittsburgh. Automobile sheets are in fairly good demand at 4.40c., Pittsburgh. Mills in this territory continue to operate at 85 per cent of capacity.

Bars; Plates and Shapes.—Liberal specifications and orders have been placed with local sellers. Prices are tending upward and mills are being pushed for deliveries. Consumers, who were content to carry meager stocks and to rely upon producers for prompt shipments, have protected themselves by ordering sufficient material to satisfy their requirements up to the first of the year. In some cases buyers have paid a premium for material which they could procure from independent mills in a week or 10 days. Bars are firm at 2c., base Pittsburgh, and a few sales have been made on a basis of 2.10c. Substantial tonnages of plates have been sold at 1.85c. to 1.90c., base Pittsburgh. It is no longer possible to place large lots at 1.80c., as indicated by unsuccessful efforts of several consumers during the past week. Shapes are stronger at 2c., Pittsburgh. Fabricators are unable to account for the dearth of attractive structural projects.

Tin Plate.—Can manufacturers are operating considerably above normal for this time of the year and tin plate specifications have been well maintained throughout the past month. A large inquiry for first quarter has appeared, but no action will be taken until mills announce their prices for next year.

Wire Goods.—A better tone prevails in this market. The low prices made by an independent Ironton mill for delivery at Ohio River points are causing less apprehension because of the improved demand from other parts of this territory. Several producers have definitely abandoned efforts to secure business in Cincinnati and other river cities to which the Ironton producer can ship by barge. Common wire nails are still being sold at as low as \$2.65 per keg, delivered Cincinnati. Orders for plain wire are being taken by the Ironton maker at \$2.54 per 100 lb., delivered here. No Eastern mills, however, will sell at that price.

Reinforcing Bars.—An absence of sizable projects has caused a lull in the local market. Prices, however, have not been affected, as new billet bars are showing strength at 2c., Cleveland, and rail steel bars are firm at 1.90c., mill.

Warehouse Business.—Sales have declined slightly because unfavorable weather has seriously hindered building activities. Consumers are buying blue annealed and galvanized sheets more freely. Quotations remain unchanged.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4c. to 4.25c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds and hexagons, 3.85c.; squares, 4.35c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, 4.10c.; No. 28 galvanized sheets, 5.25c.; No. 9 annealed wire, \$3 per 100 lb.; common wire nails, \$2.95 per keg base; cement coated nails, \$2.40 per keg; chain, \$7.55 per 100 lb. base; large round head rivets, \$3.75 base; small rivets, 65 per cent off list. Boiler tubes: prices net per 100 ft. lap welded steel tubes, 2-in., \$18; 4-in., \$38; seamless, 2-in., \$19; 4-in., \$39.

Coke.—Although the market is easier than it was a week ago, sales have attained large proportions. The major activities have centered about Wise County furnace coke. An Indiana consumer has purchased 7200 tons for first quarter delivery, while a local manufacturer has contracted for 6000 tons. Another sale of 1000 tons at \$7, ovens, was made during the week.

Connellsville foundry is now bringing \$11.53 to \$12.53, delivered here, but that price is too high to secure much business. Shipments of by-product foundry coke show a gain compared with October. The price remains at \$10.14, delivered Cincinnati.

Based on freight rates of \$2.14 from Ashland, Ky., \$3.53 from Connellsville, \$2.90 from New River ovens and \$2.59 from Wise County ovens, we quote f.o.b. Cincinnati: Connellsville foundry, \$11.53 to \$12.53; Wise County foundry, \$8.09 to \$9.59; New River foundry, \$9.90 to \$11.40; by-product foundry, \$10.14.

Old Material.—Dealers are counting upon a substantial increase in consumer buying before the end of the month, and therefore are willing to pay 50c. a ton more for scrap than a week ago. The Norfolk & Western and the Cincinnati Southern have small lists closing within a few days.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel.....	\$15.00 to \$15.50
Scrap rails for melting.....	15.00 to 15.50
Short rails	19.00 to 19.50
Relaying rails	28.00 to 28.50
Rails for rolling.....	16.00 to 16.50
Old car wheels.....	14.50 to 15.00
No. 1 locomotive tires.....	17.50 to 18.00
Railroad malleable	16.50 to 17.00
Agricultural malleable	16.00 to 16.50
Loose sheet clippings.....	10.00 to 10.50
Champion bundled sheets.....	12.00 to 12.50
Per Net Ton	
Cast iron borings.....	9.50 to 10.00
Machine shop turnings.....	8.50 to 9.00
No. 1 machinery cast.....	20.00 to 20.50
No. 1 railroad cast.....	16.00 to 16.50
Iron axles	23.50 to 24.00
No. 1 railroad wrought.....	12.50 to 13.00
Pipes and flues.....	10.00 to 10.50
No. 1 busheling.....	11.50 to 12.00
Mixed busheling	10.00 to 10.50
Burnt cast	10.50 to 11.00
Stove plate	11.50 to 12.00
Brake shoes	11.50 to 12.00

St. Louis

Cotton Belt Buys 6500 Tons of Rails— Scrap Advances—Coke and Pig Iron Active

ST. LOUIS, Nov. 10.—Inquiries for pig iron for first quarter received during the week total approximately 25,000 tons, and actual sales for that delivery amounted to about 5000 tons. Makers are proceeding cautiously in making commitments for next year, in view of the volume of demand and reports of increased melt in this district and elsewhere. Spot iron is scarce, and is commanding a premium. An East Side steel works is reported to be in the market for between 7500 and 10,000 tons of iron for shipment during 1925. The principal sale of the week was 1000 tons to the Mount Vernon Car Mfg. Co.; a stove plant bought 250 tons. The market is firm, with Northern iron quoted at \$22 to \$22.50, Chicago; Southern at \$21 to \$21.50, Birmingham, and the local product, \$23 to \$23.50, Granite City.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25....	\$24.16 to \$24.66
Northern malleable, sil. 1.75 to 2.25	24.16 to 24.66
Basic	24.16 to 24.66
Southern fdy., sil. 1.75 to 2.25....	26.17 to 26.67
Granite City iron, sil. 1.75 to 2.25..	23.81 to 24.31

Finished Iron and Steel.—The St. Louis Southwestern Railway has bought 6500 tons of 85-lb. rails in 33 and 37-ft. lengths for November and December delivery; 4120 tons were placed with the Illinois Steel Co. and the remainder with the Inland Steel Co. The road's inquiry was for 15,000 tons of 90-lb. rails. The same line has asked for prices on steel frames for 500 box cars which it contemplates building in its own shops. These will require about 5000 tons of steel. The Laclede Steel Co. has taken contracts for 740 tons of reinforcing bars as follows: Reed Garage, St. Louis, 100 tons; apartment, Grand Avenue and Castleman Street, St. Louis, 200 tons; West Side High School, Indianapolis, 200 tons; blast furnace, St. Louis Coke & Iron Co., Granite City, 200 tons; O'Dwyer Building,

Texarkana, Ark., 40 tons. No structural projects of size are pending and fabricators, who are booked only two to four weeks ahead, are looking for business.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.25c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, cold rolled, one pass, 4.50c.; galvanized sheets, No. 28, 5.50c.; black corrugated sheets, 4.65c.; galvanized, 5.65c.; cold-rolled rounds, shafting and screw stock, 3.75c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, $\frac{3}{8}$ in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 per cent; lag screws, 60 per cent; hot pressed nuts, squares, \$3.50; hexagons, blank or tapped, \$4 off list.

Coke.—The market is very active both in industrial and domestic grades. Prices are on the upturn, reflecting the anthracite strike situation. The St. Louis Coke & Iron Co. has shipped a solid trainload of 56 cars of domestic coke to Detroit.

Old Material.—The old material market is stronger and prices generally are higher. An East Side consumer has bought specialties and rails and a West Side user placed heavy melting steel, although neither purchase was large. Expectations of heavy business are supporting the market. New railroad lists include: Great Northern, 3000 tons; St. Louis-San Francisco, 1200 tons; Texas & Pacific, 1000 tons; Chicago & Eastern Illinois, and Baltimore & Ohio, 700 tons each; Southern Railway, 620 tons, and Pullman Co., 200 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	\$15.00 to \$15.50
Rails for rolling.....	19.25 to 19.75
Steel rails less than 3 ft.....	19.25 to 19.75
Relaying rails, 60 lb. and under..	24.00 to 25.00
Relaying rails, 70 lb. and over..	30.00 to 31.00
Cast iron car wheels.....	18.00 to 18.50
Heavy melting steel.....	16.25 to 16.75
Heavy shoveling steel.....	16.00 to 16.50
Frogs, switches and guards cut apart	18.50 to 19.00
Railroad springs	19.00 to 19.50
Heavy axles and tire turnings..	13.50 to 14.00
No. 1 locomotive tires.....	17.00 to 17.50

Per Net Ton	
Steel angle bars.....	15.50 to 16.00
Steel car axles.....	18.00 to 18.50
Iron car axles.....	25.25 to 25.75
Wrought iron bars and transoms	20.00 to 20.50
No. 1 railroad wrought.....	13.50 to 14.00
No. 2 railroad wrought.....	14.25 to 14.75
Cast iron borings.....	11.50 to 12.00
No. 1 busheling.....	12.50 to 13.00
No. 1 railroad cast.....	15.25 to 15.75
No. 1 machinery cast.....	17.00 to 17.50
Railroad malleable	15.00 to 15.50
Machine shop turnings.....	9.00 to 9.50
Bundled sheets	9.25 to 9.75

Buffalo

Pig Iron Continues Advance—Scrap Higher—Heavy Sheet Bookings

BUFFALO, Nov. 10.—The pig iron market has shown further strength, \$21 being quoted generally on No. 2 plain. One interest is quoting \$22 on last quarter deliveries and \$21 on first quarter, while another seller reverses this, quoting \$21 on last quarter and \$22 on first quarter shipments. Pending inquiry totals between 5000 and 10,000 tons, with a few good-sized lots out. One foundry seeks 4200 tons of iron, but this order is not expected to come here, being a natural shipment for the Cleveland furnaces. A Pennsylvania melter seeks 1500 tons of iron, and the American Radiator Co. is understood to be in the market for about 2000 tons as fill-in tonnage. The 3000 tons of malleable and basic previously reported as pending is believed to be still unplaced. Selling has been rather free the past week, though the tightening prices have militated against heavy buying.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25....	\$21.00 to \$22.00
No. 2X foundry, sil. 2.25 to 2.75..	21.50 to 22.50
No. 1 foundry, sil. 2.75 to 3.25....	22.50 to 23.50
Malleable, sil. up to 2.25.....	21.00 to 22.00
Basic	20.50
Lake Superior charcoal.....	22.28

Finished Iron and Steel.—Bars have advanced to 2.10c., Pittsburgh, with demand keeping up well. Sheets are firm, with black being quoted at 3.25c., base Pittsburgh, and galvanized at 4.50c. The Seneca Iron & Steel Co., which is operating 16 out of its 18 mills and will attain 100 per cent production when labor can be secured, is understood to be practically committed for the remainder of the year and to be temporarily out of the market. The price of automobile sheets, which form a considerable portion of the local sheet mill rolling program, has advanced to 4.40c., Pittsburgh, for No. 22 gage. Sheet specifications are in heavy volume. Wire business is reported good, with particularly good specifications on screen cloth. There has been a change in the price of flat wire from 3.75c. to 3.90c. base, Pittsburgh, per 100 lb.

Warehouse prices are being quoted as follows: Steel bars, 3.25c.; steel shapes, 3.35c.; steel plates, 3.35c.; No. 10 blue annealed sheets, 3.80c.; No. 28 black sheets, 4.75c.; No. 28 galvanized, 5.45c.; cold rolled shapes, 4.40c.; cold rolled rounds, 3.95c.; wire nails, 4c.; black wire, 4.05c.

Old Material.—Renewed buying activity is raising hopes for a continued stretch of brisk business. There has been some purchasing all week, with heavy melting steel of strictly No. 1 grade hitting a new level of \$19 to \$20. A local purchase of approximately 2000 tons was closed at \$19, and since then the market has strengthened. One large mill which does not use No. 1 grade has paid \$18 to \$18.50 for heavy melting. No tonnage of No. 1 of any real size can now be purchased under \$19.50, and some dealers are holding what they have for \$20. Sales of malleable have been made at \$21 to \$21.50, and several sales of cast scrap at \$17.50 are noted. Low phosphorus has been sold during the week for \$20.50 to \$21. The Pennsylvania and Erie railroad lists, which closed during the week, brought better than \$20, and went to Pittsburgh buyers. The market is not only stronger but is expected to go higher. Mills are buying now as they have been accustomed to do for the past few years, i.e. just as they require the material, with the consequence that the entrance of two or three of them into the market at about the same time sends prices up rapidly.

We quote prices f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel.....	\$19.00 to \$20.00
Low phosphorus	20.50 to 21.50
No. 1 railroad wrought.....	16.50 to 17.00
Car wheels	17.50 to 18.00
Machine shop turnings.....	12.50 to 13.50
Cast iron borings.....	13.00 to 13.50
No. 1 busheling.....	17.50 to 18.00
Stove plate	15.00
Grate bars	14.50 to 15.00
Hand bundled sheets.....	13.00 to 13.50
Hydraulic compressed	16.50 to 17.50
No. 1 machinery cast.....	17.50 to 18.00
Railroad malleable	20.00 to 21.00
No. 1 cast scrap.....	17.00 to 17.50
Iron axles	26.00 to 27.00
Steel axles	20.00 to 21.00

Strong Scrap Market at Detroit

DETROIT, Nov. 10.—Despite several holdups on large tonnages for shipment to Ohio points, the Pittsburgh district continues to absorb a large portion of the scrap tonnage from this district, with the result that blast furnace materials registered an advance of 50c. per ton during the past week. The tone of the market is decidedly strong. Curtailment in production of waste material will further strengthen the present situation, so that dealers are anticipating a firm market for some time ahead.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate. No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	\$15.25 to \$15.75
Borings and short turnings.....	12.00 to 12.50
Long turnings	10.75 to 11.25
No. 1 machinery cast.....	17.00 to 18.00
Automobile cast	23.00 to 24.00
Hydraulic compressed	14.00 to 14.50
Stove plate	13.50 to 14.50
No. 1 busheling.....	13.25 to 13.75
Sheet clippings	9.00 to 9.50
Flashings	12.50 to 13.00

New York

Inquiry for 757,000 Boxes of Tin Plate—Coke and Pig Iron Less Buoyant

NEW YORK, Nov. 10.—Although sales of local brokers during the week are estimated at 15,000 tons, buying is on a diminishing scale and new inquiries are few. Aside from the fact that the rise in coke has been halted, melters find assurance in offerings of foreign iron. Both domestic and foreign irons have advanced during the week, but the upward trend of prices is noticeably less strong. Eastern Pennsylvania foundry now ranges from \$22.50 to \$23, furnace, for No. 2 plain, and Buffalo iron is commanding \$20.50 to \$21, base furnace, with some producers quoting as high as \$22. Dutch iron is offered at \$23, base (for No. 2 plain), duty paid port of entry; Indian iron is quoted at \$22.50, and German material at \$21.50 to \$22. More active selling of foreign iron is reported. The United States Cast Iron Pipe & Foundry Co. has purchased 10,000 tons of English iron. The Essex Foundry, Newark, N. J., divided 3000 tons for first quarter delivery between domestic and foreign producers. The Central Foundry Co. closed for 3000 tons for first quarter shipment to its Dundalk, Md., and Lansdale, Pa., plants. A New Jersey melter is inquiring for 200 to 300 tons of No. 2 plain for December and January delivery. A New York State consumer is in the market for 500 tons of Bessemer iron for first quarter. Among the largest current inquiries in the East is one from the Pennsylvania Railroad for 2000 to 3000 tons of foundry and wheel iron.

We quote delivered in the New York district as follows, having added to furnace prices \$2.52 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.54 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25.....	\$25.02 to \$25.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	25.52 to 26.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	26.02 to 26.52
Buffalo, sil. 1.75 to 2.25.....	25.41 to 25.91
No. 2 Virginia, sil. 1.75 to 2.25.....	29.54

Ferroalloys.—The ferromanganese market is quiet so far as orders for delivery this year are concerned. There are sales of carloads and small lots to those who need the alloy for immediate use. The market is, however, becoming more active so far as contracts for 1926 are concerned. One sale of 300 tons for delivery in the first quarter is noted and some contracts have been closed with other companies for delivery in the first half. On this business the full price of \$115, seaboard, is reported. Fairly heavy buying for next year's delivery is expected to develop soon. The spiegeleisen market is only moderately active, with sales for this year's consumption confined to small lots. Contracts for 50 per cent ferrosilicon and for standard ferrochromium for 1926 are now being negotiated. For the silicon alloy the price for next year is \$85 per ton, delivered. This is an advance of \$2.50 per ton over the price made a year ago for 1925 delivery. The price for standard ferrochromium remains at 11.50c. per lb. of contained chromium.

Finished Iron and Steel.—Items of outstanding interest in a market of sustained activity include the appearance of more car inquiries, (noted elsewhere) the request for prices by the Standard Oil Co. of N. J. on 318,000 boxes of tin plate for the first half, and 439,000 boxes for the second half of 1926, and the early likelihood of the New York Central's closing on as many as 5,000,000 tie plates and 40,000 kegs of spikes. The New York Central's inquiry covered 3,000,000 to 5,000,000 tie plates and 25,000 to 40,000 kegs of spikes, with opinion generally that the purchase would cover the full amount. The Standard Oil inquiry is expected to hasten the decision as to next year's tin plate prices, a matter of particular importance in view of the high and uncertain price of tin. In structural steel, mills are accumulating a backlog, and some are asking \$2 a ton advance on new business over the remainder of the year. A limited amount of

contracting is being done for the first quarter at \$2 a ton above present levels, but chiefly in cases of buyers requiring forward protection on material. Considerable fabricated work closed in October to take advantage of the lump sum method of bidding (now no longer to be regular practice) is still to be made public, pending settlement of final arrangements. Numbers of steel consumers have indicated a willingness to cover for the first quarter of next year, and while some producers are either not considering such inquiries or asking an advance over today's levels, others have entered some bar business, for example, for delivery at the convenience of the mill, while still another is willing to enter a moderate tonnage to regular customers at today's prices. At least one mill is quoting steel bars at 2.10c., Pittsburgh. Save for plates, the price structure is strong. The question of a contract price for plates, now \$8 a ton in the East below shapes and bars, has not yet been answered.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. to 2.44c.; plates, 1.94c. to 2.04c.; structural shapes, 2.24c. to 2.34c.; bar iron, 2.14c. to 2.24c.

Warehouse Business.—Activity since the first of the month seems to indicate that November will prove an even better month than October. The tendency of prices is still upward, with black and galvanized sheets being sold on a minimum basis of 4.25c. and 5.25c. per lb., respectively. An increasing volume of business in sheets is being done at 10c. per 100 lb. higher than this minimum and a range of price up to 4.50c. and 5.50c. per lb. base is in prospect. Machine and carriage bolts are unchanged, but the discount on stove bolts has been increased by 5 per cent. In the field of non-ferrous metals zinc has been advanced another ¼c. per lb. on sales out of stock and brass and copper products are up another ¼c. per lb. Prices are given on page 1370. We quote boiler tubes per 100 ft. as follows:

Lap welded steel tubes, 2-in., \$17.33; seamless steel, 2-in., \$20.24; charcoal iron, 2-in., \$25; 4-in., \$67.

Cast Iron Pipe.—Prices are beginning to develop strength and, although \$50.60 per net ton, f.o.b. New York, is still quotable for large lots and on municipal lettings, the present market will range up to \$52.60 per net ton on the smaller lots. Bids were opened today on a tonnage of pressure pipe by Providence, R. I., but award is not yet announced. Two contracts involving water pipe, let by the Department of Water Supply, Gas and Electricity, New York, will be filled by the Donaldson Iron Co., which will furnish about 500 tons on each. Bids have been opened by Pleasantville, N. J., on 950 tons of pipe, but award has not yet been made. The Consolidated Gas Co. of Baltimore has closed on 4500 tons of gas pipe with the Pont-a-Mousson Works, the French maker represented by B. Nicoll & Co., New York. Discounts in the soil pipe market are firmer, but the seasonal quiet has set in and buying for delivery in the first quarter is not expected for another month. Most makers are apparently well booked to the end of the year.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$50.60 to \$52.60; 4-in. and 5-in., \$55.60 and \$57.60; 3-in., \$65.60 to \$67.60, with \$5 additional for Class A and gas pipe. Discounts of both Northern and Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 45 to 50 per cent off list; heavy, 55 to 60 per cent off list.

Coke.—Foundry coke is holding quite firmly to a range of \$8.50 to \$9 per ton, but both furnace and domestic sizes are off \$1.50 to \$2 per ton from the recent high level. Domestic coke has dropped from a top quotation of \$11 to \$11.50 per ton to a range of \$9 to \$9.50 per ton on screened stove and nut sizes, mixtures of egg and broken coke selling as low as \$7.75 per ton. Furnace has declined from about \$8 per ton to \$7 to \$7.25 per ton and occasionally less. This development is attributed in part to the fact that prices of domestic coke had reached such a high level as to make the purchase of bituminous coal a safer investment for dealers and in part to the establishment of an embargo at South Amboy, N. J., Nov. 4, by the Pennsylvania Railroad, which has held up shipments into this district and forced coke into the market that would other-

wise have been shipped at the higher prices. Under the circumstances, there is no interest in foreign coke. By-product is quoted at \$11.52, delivered Newark or Jersey City, N. J.

Old Material.—The upward movement of buying prices in this district, which has been developing gradually, partly as a reflection of strength of other markets, is resulting in a general advance on practically all grades. The minimum buying price of brokers on No. 1 heavy melting steel is now \$16.50 per ton, with occasional purchases reported at higher than \$17 per ton, delivered to eastern Pennsylvania consumers. While much of the current advance is the direct result of actual purchasing by consumers, there is still considerable broker buying at advanced prices to complete contracts.

Buying prices per gross ton New York follow:

Heavy melting steel (yard).....	\$11.50 to \$12.00
Heavy melting steel (railroad or equivalent)	13.25 to 13.75
Rails for rolling.....	14.25 to 14.75
Relaying rails, nominal.....	23.00 to 24.00
Steel car axles.....	21.50 to 22.00
Iron car axles.....	24.00 to 24.50
No. 1 railroad wrought.....	15.50 to 16.00
Forge fire	10.50 to 11.50
No. 1 yard wrought, long.....	14.50 to 15.00
Cast borings (steel mill).....	10.25 to 10.75
Cast borings (chemical).....	14.00 to 14.50
Machine shop turnings.....	10.25 to 11.00
Mixed borings and turnings.....	10.25 to 10.75
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	12.75 to 13.25
Stove plate (steel mill).....	11.00 to 11.50
Stove plate (foundry).....	12.00 to 12.50
Locomotive grate bars.....	12.00 to 12.50
Malleable cast (railroad).....	16.50 to 17.50
Cast iron car wheels.....	14.00 to 14.50
No. 1 heavy breakable cast.....	13.75 to 14.25

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast.....	\$18.00 to \$18.50
No. 1 heavy cast (columns, building material, etc.), cupola size	16.50 to 17.00
No. 2 cast (radiators, cast boilers, etc.)	15.50 to 16.00

Cleveland

Finished Steel Prices Stiffen with Gain in Orders—40,000 Tons of Pig Iron Sold

CLEVELAND, Nov. 10.—The volume of business is heavy in practically all lines of finished steel and with some of the mills orders booked so far this month show a considerable gain over the same period in October. There is active buying for stock purposes in fair-sized lots and an increasing volume of inquiry for the first quarter. While mills generally are resisting the offers of first quarter contracts, they are taking some of the business tendered them for that delivery, particularly from consumers who wish to be covered with steel for products for which they are taking contracts. Mills are better booked with plate tonnage than for a long time and some buyers who have become accustomed to secure quick shipments are now finding it necessary to do some shopping around to find mills that can make better deliveries than they can secure from their regular sources of supply. Steel bars are firm at 2c., Pittsburgh. Structural material is stronger, although 1.90c. does not seem to have disappeared for round lots. The leading interest has established a quantity differential of \$2 a ton on steel bars, plates and structural material, making the price 2.10c. on lots less than 50 tons. The outstanding award in the structural field was the Niagara River bridge at Buffalo, 8750 tons, which went to the Bethlehem Steel Co. This company's bid was \$151.40 per ton erected, which was \$1.40 a ton lower than the second bid. The Standard Oil Co. of Indiana is inquiring for 135 low pressure stills, requiring 2000 tons of plates.

Pig Iron.—There has been further advances of 50c. a ton on foundry and malleable iron in the Valley district and some of the Lake furnaces have raised prices \$1 a ton or more. The Lake furnace price in this territory is now established at \$23, which has been quoted by Detroit furnaces for several weeks. Cleveland furnaces, which recently withdrew from the market, do not expect to have iron to sell for some time,

and until they are again market factors Cleveland prices will be the Valley quotations plus the freight rate of \$1.76. In the Valley district \$20.50, furnace, is now the minimum quotation for this year and considerable iron was sold at that price during the past week. However, most Valley producers are now on a \$21 basis and little Valley iron is available at the lower price. For the first quarter no quotations are being made below \$21. In Buffalo iron is firmly established at \$21, base furnace. The market continues active, although sales were not so large last week as during the previous week. Orders taken by local interests aggregated 40,000 tons. The Buick Motor Co., which recently inquired for a large tonnage of iron for its own and other General Motors plants for the first quarter to supplement the iron it takes on long term contracts, has divided the business between several furnaces. While its inquiry was for 21,000 tons, its purchases are understood to have exceeded that amount by several thousand tons. The Westinghouse Electric & Mfg. Co., which recently bought fourth quarter iron for its Cleveland plant, has purchased 4500 tons for this plant for the first quarter. It is understood this business went to Valley furnaces. Other purchases included 3000 tons taken by a Newark stove foundry and 1000 tons by a northern Ohio foundry. Some of the business in central western Ohio that has been going to Lake furnaces is being diverted to southern Ohio and Columbus furnaces, this evidently being due to the higher prices that are now being quoted by the former producers. Basic iron is inactive, but is apparently now being held at \$20, furnace, by all producers. One or two of the Ohio silvery producers have withdrawn the regular schedule for this year and are asking \$1 a ton more. Pickands, Mather & Co. will blow in, about Nov. 16, its Perry furnace at Erie, Pa., which has been relined. This firm has already started up its by-product coke plant in Erie, which consists of 35 Wilputte ovens.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6.01 from Birmingham:

Basic, Valley furnace.....	\$20.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25....	\$22.26 to 22.76
Southern fdy., sil. 1.75 to 2.25....	26.01 to 27.01
Malleable	22.26 to 22.76
Ohio silvery, 8 per cent.....	31.52
Standard low phos., Valley furnace	27.50

Iron Ore.—Several of the ore firms have about cleaned up their shipments for the season and will send their last cargoes this week. The Steel Corporation will continue to move ore until Nov. 20, and some of the other shippers will not wind up until the end of the month if weather conditions permit shipments. During the first five days of November approximately 1,250,000 tons of ore were shipped and the November movement is expected slightly to exceed 3,000,000 tons, making water shipments for the season approximately 53,000,000 tons, or close to the estimates made early in the season. October shipments were 7,004,443 tons, these being incorrectly reported last week because of an error in telegraphic transmission. The season will end with less ore on the docks than at the close of last year. The dock balance Nov. 1 was 7,656,229 tons, as compared with 8,118,921 tons on the same date a year ago. The amount on docks and furnace yards at the close of the season of navigation will also be slightly less than a year ago. Receipts at Lake Erie ports during October were 5,146,888 tons and for the season until Nov. 1, 35,453,331 tons, as compared with 29,556,228 tons for the same period last year. Shipments from these docks during October were 3,263,470 tons and for the season until Nov. 1 they were 24,965,594 tons, as compared with 20,781,175 tons up until Nov. 1 last year.

Semi-Finished Steel.—No sales are reported since the advance to \$35, Youngstown, on sheet bars, billets and slabs, but a local mill has received considerable inquiry for the first quarter, although it has not yet opened its books for that delivery.

Bolts, Nuts and Rivets.—Demand for bolts and nuts continues fairly heavy and prices are firm.

Sheets.—New demand for sheets is heavy and many

of the mills are virtually sold up for the remainder of the year. Some consumers have placed large orders for December shipment which apparently will cover part of their January requirements. Inquiry is coming out for first quarter contracts, but mills are not yet quoting for that delivery. The market is now firmly established at 3.25c., Pittsburgh, for black, 2.40c. for blue annealed and 4.40c. for galvanized sheets.

Strip Steel.—Some business in hot-rolled strip steel is being booked for the first quarter by a Cleveland mill that recently opened its books for that delivery, at the present prices of 2.30c., Pittsburgh, for wide material and 2.50c. for narrow strip.

Warehouse Business.—Warehouse prices on sheets have been advanced \$3 a ton by Cleveland jobbers, and consumers are buying rather freely to cover their requirements for the remainder of the year.

Jobbers quote steel bars, 3.10c.; plates and structural shapes, 3.20c.; No. 28 black sheets, 3.95c.; No. 28 galvanized sheets, 5.10c.; No. 10 blue annealed sheets, 3.15c.; cold rolled rounds and hexagons, 3.80c.; flats and squares, 4.30c.; hoops and bands, 3.85c.; No. 9 annealed wire, \$3 per 100 lb.; No. 9 galvanized wire, \$3.45 per 100 lb.; common wire nails, \$3 base per 100 lb.

Fluorspar.—Some inquiry has come out for gravel fluorspar for the first quarter, but no new sales are reported. An attempt is being made to get a higher price than \$16 on this grade, but so far this has not met with success because of the competition of foreign material which at \$16, Philadelphia, is delivered into the Pittsburgh territory at a slightly lower price than the domestic grade bringing the same price at the mine.

Coke.—The supply of by-product foundry coke for domestic use has increased because of new sources of supply and the amount now being offered is in excess of the demand. This has caused a softening of prices which have declined from the \$10 peak, at which considerable business was placed, to \$9 to \$9.50, ovens. Dealers in some cases have been willing to take a loss by offering coke at \$9.25. An application has been made to the Interstate Commerce Commission for an emergency rate on coke for Eastern shipments which would put some of the by-product plants on the same rate basis as Connellsville ovens, thereby opening up a wide coke market in New England. In the meantime Ohio producers, finding that the sections of the East they have been supplying are glutted, are looking toward the West for an outlet for their fuel. Connellsville foundry coke has sharply declined to \$8.50, ovens. Ohio by-product foundry coke is unchanged at \$7.50 at oven for prompt shipment, or 50c above the contract price for November.

Old Material.—The market is very firm, but prices remain at recent levels. There is considerable activity among dealers, who are doing some speculative buying, evidently with the belief that prices will go higher. Little activity is reported among consumers. Scrap lists of Detroit automobile companies for November were closed during the week. Mixed borings and turnings are reported to have brought prices equivalent to about \$15.50, delivered Cleveland, or too high to permit shipment to this city at prevailing local prices. Some of this scrap will be consumed by Detroit blast furnaces. The local market on this grade is \$14.75 to \$15, delivered.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel.....	\$17.25 to \$17.75
Rails for rolling.....	16.75 to 17.00
Rails under 3 ft.....	19.50 to 20.00
Low phosphorus melting.....	19.00 to 19.25
Cast iron borings.....	14.50 to 14.75
Machine shop turnings.....	13.00 to 13.25
Mixed borings and short turnings.....	14.50 to 14.75
Compressed sheet steel.....	15.50 to 16.00
Railroad wrought	14.50 to 15.00
Railroad malleable	20.00 to 20.50
Light bundled sheet stampings.....	12.50 to 12.75
Steel axle turnings.....	15.25 to 15.50
No. 1 cast.....	18.00 to 18.50
No. 1 busheling.....	14.50 to 14.75
Drop forge flashings.....	14.75 to 15.00
Railroad grate bars.....	13.75 to 14.00
Stove plate	13.75 to 14.00
Pipes and flues.....	11.50 to 12.00

Philadelphia

Pig Iron Generally 50 Cents Higher— Advances in Scrap

PHILADELPHIA, Nov. 10.—Advances of 50c. per ton in the prices of basic and foundry iron and \$1 in low phosphorus, and an increase of 50c. per ton in several grades of scrap, together with a decline of \$2 to \$2.50 per ton in furnace coke, featured this market during the past week. There has been considerable quiet selling for first quarter shipment. It is conservatively estimated that 25,000 tons of foundry iron has been booked by Eastern furnaces for that delivery.

The drop in furnace coke has brought the price to \$7 to \$7.50, Connellsville ovens. This is attributed partly to heavier production, quick deliveries, and the embargo on coke deliveries to the South Amboy, N. J., piers of the Pennsylvania Railroad. No first quarter contracts for coke in this district are reported.

Steel lines are firmer, though no actual sales have been made at higher asking prices. The Pennsylvania 1926 rail contract recently placed calls for 160,000 tons with a provision that each allotment may be increased 25 per cent, which would mean an additional lot of 40,000 tons, making a total of 200,000 tons.

Pig Iron.—Strength continues to develop in pig iron. While still irregular, prices have shown an advance of 50c. per ton in basic and foundry grades and of \$1 in low phosphorus. The general attitude of blast furnace interests is not to sell for first quarter delivery. At the same time the selling for this delivery has reached greater proportions than had been at first indicated. Sales for this delivery have been made in recent transactions mostly at \$23, base, furnace, against the last quarter quotations of 22.50, base, furnace. But some makers are asking \$23, base, for last quarter delivery also and say they have taken business at that figure. Basic iron also is up 50c. and now takes a range of \$22.50 to \$23.50 delivered, but the minimum of some furnaces for this grade is \$23 delivered. Sales during the period before the fuel uncertainty developed were made in foundry iron at \$22 base, furnace. Standard low phosphorus has been sold at \$24 to \$25 for first quarter delivery and copper bearing low phosphorus at \$24.50. One sale of 400 tons of copper bearing low phosphorus at the higher price was for first quarter shipment. It is becoming increasingly difficult to obtain iron, and most furnaces are committed heavily for last quarter delivery. Furnaces selling low phosphorus are doing so for first quarter delivery only where they may have a surplus over last quarter commitments. The principal quotation on Continental iron is \$22 to \$22.50, duty paid, f.o.b., cars, Philadelphia. A recent sale of two lots of English iron, one for 10,000 tons and another for 5000 tons was made at between \$20 and \$21 duty paid, f.o.b. cars, Philadelphia. The same melter also recently closed for 5000 tons of No. 2X, and No. 3X iron from an Ohio furnace for delivery in western Pennsylvania at \$19.50, furnace, but since then the price is reported to be no longer available. Some English iron is being offered by one interest here at \$21.50 for No. 2 plain, duty paid, f.o.b. cars, Philadelphia. No Virginia iron is coming to this district as yet but a sale of 10,000 tons recently was made to a Virginia foundry at \$22.50 furnace. The Pulaski Iron Co., Pulaski, Va., has blown out its furnace for repairs but is expected to resume operation soon.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to \$1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	23.26 to 24.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	23.76 to 24.63
East. Pa. No. 1X.	24.26 to 25.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic delivery eastern Pa.	22.50 to 23.50
Gray forge	22.00 to 23.00
Malleable	23.00 to 23.50
Standard low phos. (f.o.b. furnace)	24.00 to 25.00
Copper bearing low phos. (f.o.b. furnace)	24.50

Billets.—Rerolling and forging billets are in only slight demand. The market is unchanged at \$35 and \$40, base, Pittsburgh, respectively.

Plates.—The market shows a slightly better tone with quotations ranging from 1.60c. to 1.80c., base, Pittsburgh, for last quarter delivery, with most makers refusing to commit themselves for first quarter shipment. Where such business is quoted the price generally is 2c. but no sales at this figure are reported. Most sales are going at 1.60c. for last quarter shipment. The Missouri Pacific has placed 10 locomotives with the Baldwin Locomotive Works. The Baldwin interest also has taken 8 locomotives for Brazil and 3 for Japan.

Structural Steel.—A number of fair sized lots of shapes have been sold here during the past week and the market shows an improved tone. The range of 1.80c. to 1.90c., Pittsburgh, continues to be quoted.

Bars.—Steel bars for last quarter are firm at 2c. base, Pittsburgh. No sales for first quarter delivery are being made. Mills are well booked for the remainder of the year. Iron bars show a firmer tone and now are quoted at a range of 2.12c to 2.22c Philadelphia. Business, however, in this line is not heavy.

Sheets.—An advance from 2.35c. to 2.40c. Pittsburgh has been made in this district in the price of blue annealed sheets. The other lines also have gone up in line with advances made by Western mills.

Warehouse Business.—Black sheets, No. 28 gage, have been advanced from 4.45c to 4.55c and galvanized sheets from 5.55c to 5.65c in this district. Other jobbing lines remain unchanged in price. Business with warehouses is spotty.

Soft steel bars and small shapes, 3.20c.; iron bars (except bands), \$3.20c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel planished, 4.30c.; tank steel plates, ¼ in. and heavier, 2.80c. to 3c.; tank steel plates, ½ in., 3c.; blue annealed steel sheets, No. 10 gage, 3.35c.; black sheets, No. 28 gage, 4.55c.; galvanized sheets, No. 28 gage, 5.65c.; square, twisted and deformed steel bars, 3c.; structural shapes, 2.75c. to 2.90c.; diamond pattern plates, ¼ in., 5.30c.; ½ in., 5.50c.; spring steel, 5c.; rounds and hexagons, cold-rolled steel, 3.90c.; squares and flats, cold-rolled steel, 4.40c.; steel hoops, 4.25c. base; steel bands, No. 12 gage to ½ in., inclusive, 3.90c.; rails, 3.20c.; tool steel, 8.50c.; Norway iron, 6.50c.

Old Material.—A number of grades of scrap have advanced 50c. per ton. Heavy melting steel now is being sold at \$17.50 flat. Dealers generally are willing to sell only small lots, feeling that the market will continue to rise. Some are holding heavy melting steel at \$18. It also is becoming more difficult for dealers to buy material owing to higher prices at other points, notably Pittsburgh. The Pennsylvania list for 35,000 to 40,000 tons, closed last Friday, went at higher prices than most dealers had anticipated.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	\$17.50
Scrap rails	\$17.00 to 17.50
Steel rails for rolling	18.50 to 19.00
No. 1 low phos. heavy 0.04 and under	22.00 to 22.50
Couplers and knuckles	21.50 to 22.00
Rolled steel wheels	21.50 to 22.00
Cast iron car wheels	18.50 to 19.00
No. 1 railroad wrought	18.50 to 19.00
No. 1 yard wrought	17.00 to 17.50
No. 1 forge fire	14.50 to 15.50
Bundled sheets (for steel works)	14.50 to 15.00
Mixed borings and turnings (for blast furnace use)	13.50 to 14.00
Machine shop turnings (for steel works use)	15.00 to 15.50
Machine shop turnings (for rolling mill use)	15.00 to 15.50
Heavy axle turnings (or equivalent)	15.50 to 16.00
Cast borings (for steel works and rolling mill)	14.50
Cast borings (for chemical plant)	16.50 to 17.00
No. 1 cast	18.00 to 19.00
Heavy breakable cast (for steel plant)	17.50 to 18.00
Railroad grate bars	15.00 to 15.50
Stove plate (for steel plant use)	14.50 to 15.00
Wrought iron and soft steel pipes and tubes (new specifications)	16.50 to 17.00
Shafting	23.00 to 24.00
Steel axles	24.00 to 25.00

FABRICATED STEEL

Awards of No Less Than 65,000 Tons—Inquiries Close to 45,000 Tons

Awards of structural steel reported in the past week, more than 65,000 tons, represented the largest total of any week this year. In the last week of September, if the plate work for the Oakland, Cal., pipe line were included, the combined total of fabricated plate and fabricated shape then was larger. A substantial part of this week's tonnage was in bridges, more than 19,000 tons, the Liberty bridge, Pittsburgh, alone totaling 10,000. Inquiries, many of them individually running well beyond 1000 tons, totaled close to 45,000 tons.

Apartment building, Central Park West and Eighty-fourth Street, New York, 1400 tons, to Hay Foundry & Iron Works, New York.

Manhattan Storage & Warehouse Co., New York, building, 3400 tons, to Heddon Iron Construction Co., New York.

Henco Realty Co., New York, loft building, Ninth Avenue and Thirty-third Street, New York, 8500 tons, to A. E. Norton, Inc., New York.

Apartment building, 116 East Fifty-sixth Street, New York, 700 tons, to Shoemaker Bridge Co., New York.

Two 12-story apartments, Butler Place and Plaza Street, Brooklyn, N. Y., total of 1400 tons, to Harris Structural Steel Co., New York.

St. Francis College, New York, school building, 350 tons, to Lehigh Structural Steel Co.

City of New York, Pier 65, 200 tons, to Belmont Iron Works.

Fleetwood Hotel, Hendersonville, N. C., 1200 tons, to J. E. Moss Iron Works, Wheeling, W. Va.

City of New York, subway, Section No. 1, 2400 tons, to McClintic-Marshall Co.

Office building, Madison Avenue and Forty-ninth Street, New York, 700 tons, to Heddon Iron Construction Co., New York.

Apartment building, Park Avenue and Eightieth Street, New York, 1300 tons, to Hinkle Iron Works, New York.

A. E. Lefcourt, New York, two loft buildings, one of 3500 tons, the other 1000 tons, both to McClintic-Marshall Co.

Apartment building, Broadway and 111th Street, New York, 1600 tons, to Harris Structural Steel Co.

Apartment building on West Seventieth Street, New York, 700 tons, to Easton Structural Steel Co., New York.

Stone & Webster, Inc., Boston, sugar refinery addition, Philadelphia, 600 tons, to Shoemaker Bridge Co., Philadelphia.

Buffalo & Fort Erie Public Bridge Co., Niagara River bridge, Buffalo, 8750 tons to Bethlehem Steel Co.

Theater, New London, Conn., 250 tons; junior high school, Quincy, Mass., 250 tons; Bond Building, Manchester, N. H., 200 tons; municipal garage, Pittsfield, Mass., 100 tons; miscellaneous work, 600 tons, all to Palmer Steel Co., Springfield, Mass.

Prison buildings, Wingdale, N. Y., 850 tons; Wyman-Gordon boiler house, Worcester, Mass., 200 tons; Roubaix weave shed, Clinton, Mass., 100 tons; Nurses Home, Worcester, 200 tons; Assumption Academy, Worcester, 100 tons, all to Eastern Bridge & Structural Co., Worcester.

Theater, Waverly, N. Y., 100 tons, to Kellogg Structural Steel Co., Buffalo.

Lamson Co., Syracuse, N. Y., plant addition, 100 tons, to Kellogg Structural Steel Co.

Liberty Bridge, Pittsburgh, 10,000 tons, to Independent Bridge Co., Pittsburgh.

Hillman Coal & Coke Co., Pittsburgh, 20 coal barges, 3200 tons, to Jones & Laughlin Steel Corporation.

Charleston, W. Va., highway bridge, 400 tons, to Independent Bridge Co.

Wabash-Monroe Building Corporation, 16-story loft building, Chicago, 1910 tons, to Duffin Iron Works, Chicago.

Aluminum Goods Mfg. Co., Two Rivers, Wis., factory building, 470 tons, to American Bridge Co.

Crucible Steel Casting Co., Milwaukee, 300 tons, to an unnamed fabricator.

Marland Refining Co., machine shop, Ponca City, Okla., 290 tons, to Kansas City Structural Steel Co., Kansas City, Mo.

Illinois Northern Utilities Co., Dixon, Ill., power plant, 250 tons, to Mississippi Valley Structural Steel Co., Decatur, Ill.

Chicago Athletic Association, six-story addition, 200 tons, to Vanderkloot Steel Works, Chicago.

Fisher Body Corporation, Memphis, Tenn., factory building, 800 tons, to Virginia Bridge & Iron Co., Roanoke, Va.

Link-Belt Co., Chicago, factory building, 150 tons, to Flint Structural Steel Co., Flint, Mich.

Theater, Filmore and California Streets, San Francisco, 225 tons, to Moore Dry Dock Co., San Francisco.

Temple Emanu-El addition, Arguello Boulevard, San Francisco, 300 tons, to Dyer Brothers Iron Works, San Francisco.

Loft and factory building for Mangin-Otter, Inc., Mission and Eighth Streets, San Francisco, 280 tons, to Moore Dry Dock Co.

Office building, Third and E Streets, San Bernardino, Cal., 300 tons, to Union Iron Works, San Francisco.

East Bay Water Co., Oakland, Cal., pipe line, 300 tons, to Steel Tank & Pipe Co., and 75 tons to Western Pipe & Steel Co., San Francisco.

St. Luke's Hospital, Cleveland, 1500 tons, to McClintic-Marshall Co.

South Park Avenue bridge, Buffalo, 160 tons, to American Bridge Co.

Marland Refining Co., Ponca City, Okla., 3600 tons, for 75 oil storage tanks, to Graver Corporation, East Chicago, Ind.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Office building, West Forty-seventh Street, New York, 1400 tons.

Loft building, Liberty Street, New York, 1000 tons.

Shupe Terminal Corporation, Kearny, N. J., building, 400 tons.

Telephone exchange, White Plains, N. Y., 150 tons.

Hotel Savoy, New York, alterations, 250 tons.

Bank building, Jacksonville, Fla., 1800 tons.

Breakers Hotel, Palm Beach, Fla., 1000 tons.

United Gas Improvement Co., Philadelphia, office building, 900 tons.

Pennsylvania Railroad, for American Railway Express terminal, Long Island City, N. Y., 2000 tons.

Richard Newman Co., Norfolk, Va., building, 1000 tons.

City of New York, Section No. 7, Fort Washington Avenue subway, 2450 tons.

Lehigh Valley Railroad, bridge over Susquehanna River, 1200 tons.

Gillette Safety Razor Co., Boston, razor plant, 200 tons; handle plant, 100 tons.

Worthington Pump & Machinery Co., building in Cincinnati, 400 tons; general contract placed with the H. K. Ferguson Co., Cleveland.

Kentucky State Highway Commission, highway bridge in Floyd County, Ky., 300 tons.

Standard Oil Co. of Indiana, distributing plant, West Indianapolis, 300 tons.

Hotel Eitel, Delaware and Cass Streets, Chicago, 1200 tons.

Bell Telephone Co., Detroit, office building, 3000 tons.

Fisher Body Corporation, Fleetwood, Pa., factory building, 300 tons.

Elks' Club, Aurora, Ill., 175 tons.

Intake bridge, Thirty-ninth Street, Chicago, 1500 tons.

Adams Street bridge, Chicago, 2000 tons.

San Diego, Cal., 26 miles of 30-in. pipe line from El Capitan dam site to San Diego, 5000 to 10,000 tons; bids to be called soon.

Vantage Ferry Bridge, across the Columbia River between Kittitas and Grant counties on the north central highway, Washington, 1000 tons; bids about Dec. 1, Washington Highway Commission, Olympia, Wash.

Bureau of Reclamation, Denver, Colo., 535 tons; bids close Dec. 3.

Office building, Sutter and Montgomery Streets, San Francisco, about 6000 tons; plans being completed, no date yet set for bids.

Medico-Dental Building, Stockton, Cal., 200 tons; no date set for bids.

Marin County Municipal Water District, San Rafael, Cal., pipe line, estimated minimum 1500 tons; bids to be called in January.

Insane Asylum, Fort Stillman, Wash., 170 tons.

Motion picture studio, Longview, Wash., 1500 tons.

Court House, Coeur d'Alene, Idaho, 400 tons.

Women's gymnasium, Corvallis, Ore., 100 tons.

Toll bridge over the Columbia River at Longview, Wash., 2000 tons.

Hotel Martinique, Buffalo, 400 tons, bids taken.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

Nov.	Copper, New York		Straits Tin (Spot)		Lead		Zinc	
	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis	
4.....	14.87 1/2	14.62 1/2	62.70	9.90	9.50	9.20	8.85	
5.....	14.87 1/2	14.62 1/2	63.12 1/2	9.90	9.50	9.22 1/2	8.87 1/2	
6.....	14.87 1/2	14.62 1/2	63.00	9.90	9.50	9.25	8.90	
7.....	14.87 1/2	14.62 1/2	.....	9.90	9.50	9.25	8.90	
9.....	14.87 1/2	14.55	62.25	9.90	9.50	9.15	8.80	
10.....	14.87 1/2	14.55	62.37 1/2	9.90	9.50	9.10	8.75	

*Refinery quotation; delivered price 1/4 c. higher.

New York

NEW YORK, Nov. 10.

None of the markets is particularly active. The copper market is quiet but fairly steady. There has been a moderate reaction in tin. Lead is stronger because of the scarcity. Zinc, after reaching higher values, has softened.

Copper.—Buying of electrolytic copper has been only moderate in the past week and there has been very little activity today. Prices are slightly higher than a week ago, with efforts to maintain the quotation at 14.87 1/2 c., delivered, largely unsuccessful. While some sales have been made at this level, most of the buying has been between 14.75 c. and 14.87 1/2 c., delivered. Business yesterday and today could be done at 14.80 c. to 14.82 1/2 c., delivered. Consumers are cautious and not active. Some large producers are out of the market except at 14.87 1/2 c., delivered. Export demand is light at 14.90 c. to 14.95 c., c.i.f. Lake copper is quoted at 14.87 1/2 c., delivered.

Tin.—A reaction in tin, which was regarded by some as due long before this, has materialized and prices are lower both here and in London. As a result consumers are out of the market, but it is the opinion of well informed persons that they must yet buy for January and February, if not for November and December, although there is a difference of opinion as to their needs for the rest of this year. If consumers enter the market soon, the reaction will come to an end. Statistically, however, the market is fundamentally strong, with consumption at a very high rate and with production not keeping pace with it. On only one day the past week was the market active, 400 tons being sold on Nov. 4. About 100 tons was sold on both Nov. 2 and Nov. 5, but the week's total is small, due partly to the election holiday. In general the market is rather easy, caused partly by the French financial situation and because consumers show no interest. Prices in London today were about £5 per ton less than a week ago, with spot standard quoted at £280, future standard at £279 and spot Straits at £288 17s. 6d. The Singapore price was £286 2s. 6d. Spot Straits tin was quoted today in New York at 62.37 1/2 c., with a fair business reported. Arrivals thus far this month have been 610 tons, with 6330 tons reported afloat.

Lead.—The market is quiet because the metal is difficult to obtain. Prices are more or less nominal under such conditions. In the outside market the average range of quotations is 9.50 c., St. Louis, or 9.90 c., New York, with higher prices realized in some special cases. The leading interest continues to quote 9.75 c. as its New York contract price.

Zinc.—Prime Western zinc continued to rise during the week until it reached 8.90 c., St. Louis, for November delivery, the highest price this year. For prompt metal higher values than this were obtained. In the last few days there has been a moderate reaction, due partly to the top-heaviness of the market and also to lower prices in London. Prompt metal today was quoted at 8.80 c., St. Louis, with November or early delivery zinc at 8.75 c., St. Louis. These are largely nominal, however, because the metal is exceedingly scarce. Statistics for October, which will be made public soon, are expected to show a further decline in

stocks. If this is true, the reaction may come to an end.

Nickel.—Ingot nickel in wholesale lots is quoted at 34 c., with shot nickel at 35 c. The quotation for electrolytic nickel is 38 c. per lb.

Antimony.—The scarcity of Chinese metal continues and prices are still high. Spot metal is quoted today at 20 c., New York, duty paid, with November arrival at 19.37 1/2 c. to 19.50 c. and December arrival at 18.75 c.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27 c. to 28 c. per lb.

Old Metals.—Business is active and the market is firm. Dealers' selling prices are as follows in cents per lb.:

Copper, heavy and crucible.....	14.25
Copper, heavy and wire	13.25
Copper, light and bottoms	11.75
Heavy machine composition	10.25
Brass, heavy	9.00
Brass, light	8.00
No. 1 red brass or composition turnings..	9.75
No. 1 yellow rod brass turnings	9.75
Lead, heavy	8.75
Lead, tea	7.00
Zinc	6.00
Cast aluminum	21.50
Sheet aluminum	21.50

Chicago

Nov. 10.—Lake copper and antimony have advanced slightly and lead and zinc have both been forced to higher levels in an active market. Tin has been less active than of late and the price is somewhat lower. Yellow brass, lead pipe and pewter have advanced slightly. We quote in carload lots: Lake copper, 14.85 c.; tin, 63.50 c.; lead, 9.95 c.; zinc, 8.90 c.; in less than carload lots, antimony, 21.50 c.. On old metals we quote copper wire, crucible shapes and copper clips, 11.50 c.; copper bottoms, 10 c.; red brass, 9 c.; yellow brass, 8 c.; lead pipe, 8.50 c.; zinc, 5.25 c.; pewter, No. 1, 37 c.; tin foil, 44 c.; block tin, 52 c.; all being dealers' buying prices for less than carload lots.

Bethlehem Steel Co. to Build Peace Bridge Over Niagara

BUFFALO, Nov. 12.—The Bethlehem Steel Co. has received a contract for the 8750 tons of steel for the new Peace Bridge to span the Niagara River between Buffalo and Fort Erie, Ont., piers for which are now being laid. The company will roll most of the shapes at the Lackawanna plant, and will fabricate most of the material at Steelton, Pa. It was low bidder at \$1,324,750. The other bidders and their figures were as follows: American Bridge Co., \$1,337,000; McClintic-Marshall Co., \$1,394,750, and Mount Vernon Bridge Co., \$1,396,500. Five piers will be ready for the steel by Dec. 1.

It is said that three Canadian companies, the Dominion Bridge Co., the Hamilton Bridge Co. and the Canadian Bridge Co., when asked to alternate on the work, asked to be excused because of the heavy tonnage on the American side and because the duty was too great to overcome.

The Southern Ohio Pig Iron and Coke Association will meet at Ashland, Ky., on Nov. 18. M. C. Booze, Mellon Institute, Pittsburgh, will read a paper on "Refractories for Blast Furnaces and Coke Plants" at the afternoon business session which will be held at the general offices of the American Rolling Mill Co. W. C. Culkins, secretary Ohio Valley Improvement Association, Cincinnati, will make an address on the "Ohio River Waterway" at the dinner meeting at the Bellefonte Country Club.

Precise shop measurements is the subject of an address to be made by George Gallasch, Bausch & Lomb Optical Co., Rochester, N. Y., on the evening of Nov. 18 at the Y. M. C. A., Plainfield, N. J., before the local section there of the American Society of Mechanical Engineers.

PERSONAL

J. M. Price has recently been elected president of the Electro Metallurgical Sales Corporation, 30 East Forty-second Street, New York. He was formerly vice-president, which position he had held for three years. William J. Priestley has been elected vice-president to succeed Mr. Price. He was formerly metallurgical engineer located at Pittsburgh and transferred to New York, Oct. 1.



J. M. PRICE

Ralph R. Browning, formerly vice-president of the Electro Metallurgical Sales Corporation, has been elected president of the Union Carbide Sales Co., president of the Oxweld Acetylene Co., vice-president of the Linde Air Products Co., and vice-president of the Prest-O-Lite Co., Inc., 30 East

Forty-second Street, New York.

Delmar G. Roos, vice-president and chief engineer Locomobile Co., Bridgeport, Conn., has resigned. Mr. Roos became associated with the Locomobile Co. in 1911, going there from the General Electric Co.

Henry C. Osborn, president American Multigraph Co., Cleveland, has been elected vice-president of the Cleveland Chamber of Commerce, to fill the vacancy caused by the recent death of D. C. Wills, chairman of the Federal Reserve Bank. F. H. Chapin, vice-president of Bourne-Fuller Co., has been elected second vice-president to replace B. D. Quarrie, who has resigned. Mr. Quarrie continues as a director.

Theodore Schou, chief engineer of the Ideal Electric & Mfg. Co., Mansfield, Ohio, has just returned from a four months' trip in Europe.

G. F. Preston, well known in the San Francisco machine tool and crane trade, has joined the sales force of Louis Henes, representing the Milwaukee Electric Crane Co. and other manufacturers of machine tools in the San Francisco and East Bay District.

Philip A. Lang, special European representative Westinghouse Electric & Mfg. Co. (and for many years works manager of the company's principal plant at East Pittsburgh, Pa.) is in the United States consulting with officials of the company in East Pittsburgh and New York. He left this country in 1906 to become managing director of the British Westinghouse Co. at Manchester, England, holding that position until 1918, when the company merged with the Metropolitan Vickers Co. As special representative, his duties are to keep the American company advised of the engineering trend abroad and to act in a consulting capacity for the Westinghouse company in European fields.

H. Terhune, for many years identified with the drop forging industry in engineering and sales capacities has joined the sales staff of the Erie Foundry Co., Erie, Pa., builder of forge shop equipment and sheet mill machinery. He was formerly associated with the Chambersburg Engineering Co., Chambersburg Pa., and before that with the Billings & Spencer Co., Hartford, Conn.

Ralph E. Flanders, manager Jones & Lamson Ma-

chine Co., Springfield, Vt., is scheduled to address a dinner meeting of the New Britain section of the American Society of Mechanical Engineers at the State Trade School on the evening of Nov. 19. His subject is "Recent Developments in Automatic Machinery Production Methods."

John L. Clymer, manager of the California Institute of Steel Construction of San Francisco, was tendered an informal luncheon on Thursday, Nov. 5, at the Chemists' Club, New York, at which were present a number of structural steel fabricators and representatives of steel companies rolling structural material.

Judge E. M. Wilson, president Pacific Coast Steel Co., San Francisco, has been elected president of the Southern California Iron & Steel Co., Los Angeles, to succeed A. C. Denman. E. S. Houdlette, sales manager Pacific Coast Steel Co., was recently elected vice-president of the Los Angeles firm, which was purchased by the Pacific Coast Steel Co. last December.

C. B. Craig, field sales manager for the Bessemer Gas Engine Co., Grove City, Pa., manufacturer of gas engines and equipment, has sailed from Los Angeles for South America on a two months' business trip in the interests of that company.

Frank G. Riehl, for eight years prior to May 1 general manager of the Art Metal Construction Co., Jamestown, N. Y., has acquired with several associates the plant and equipment of the Howe Scale Co., Rutland, Vt., manufacturer of scales and baggage trucks. The company will be reorganized, with Mr. Riehl as president.

Cassius C. Chaney, formerly general manager General Refractories Co., Philadelphia, was recently elected vice-president. He has been identified with companies manufacturing refractories for 18 years. He started with the American Refractories Co. in 1906, later becoming superintendent of its silica brick works at Rockdale, Ill. In 1915 he was appointed district manager Danville Refractories Co., Danville, Ill., manufacturer of silica brick. In 1916 he left that organization to superintend the building of a silica brick works at Joliet, Ill., for the General Refractories Co. He continued as superintendent of that works until January, 1924, when he was appointed general manager of the company.

F. M. Cross, formerly manager of the pneumatic tool department in the New York office of the Ingersoll-Rand Co., 11 Broadway, New York, has recently been appointed manager of that department in the Chicago territory, with headquarters in Chicago.

W. B. Wachler, formerly with the Hyatt Roller Bearing Co., Newark, N. J., has been appointed assistant to the president of the General Motors Export Co., and will be located at the New York office.

William Firth, for several years Pittsburgh manager of the Whitney-Kemmerer Co., Pittsburgh, has been appointed sales representative of W. J. Rainey, Inc., New York, coke manufacturer, with offices at 328 Oliver Building, Pittsburgh.

H. I. Markey has been appointed New York district manager for the Diamond Chain & Mfg. Co., Indianapolis, with offices at 1011 Chestnut Street, Philadelphia. Frank Smiley succeeds Mr. Markey as district manager of the west central territory and is located at 855 Leader-News Building, Cleveland.

H. W. Dietert, engineering department U. S. Radiator Co., Detroit, will speak at the regular monthly meeting of the Pittsburgh Foundrymen's Association at the Fort Pitt Hotel, Monday evening, Nov. 16, on "Molding Sand Control in the Foundry."

J. E. Finneran, purchasing agent Buckeye Steel Castings Co., Columbus, Ohio, has resigned. He has purchased a controlling interest in the Columbus Anvil & Forging Co., Columbus, manufacturer of steam hammer forgings, and will devote his time exclusively to that company. He had been associated with the Buckeye Steel Castings Co. for 22 years. The purchasing agent's work will hereafter be handled by T. B. Taylor, the assistant superintendent, who has been made director of purchases.

R. C. Hutchings, for many years connected with the sales organization of the American Steel & Wire Co., is now associated with Wightman-Hicks, Inc., advertising agent, 50 Union Square, New York.

Henry T. Chandler has been appointed assistant to the president, Vanadium Corporation of America, effective Nov. 10. He has been associated with the Vanadium corporation organization since Jan. 1, 1923, as metallurgical engineer, with headquarters in Detroit. Prior to his coming with the Vanadium corporation, he was engaged in research and development work in the automotive field. From 1914 to 1920 he was in charge of the research laboratory of the Ford Motor Co., investigating alloy steels and their use in applied metallurgy; from 1920 to 1923, with the C. H. Wills organization as metallurgical engineer.



HENRY T. CHANDLER

George A. Sangdahl, formerly district sales manager for the Hoten Steel Works, Ltd., Montreal, a subsidiary of the Chicago Bridge & Iron Works, has been appointed district sales manager for the latter company, with offices at 963 Union Trust Building, Cleveland. Associated with him will be A. W. Warren, formerly of the Chicago office of the Chicago Bridge & Iron Works. The Cleveland office territory will include Ohio, West Virginia, Kentucky east of Frankfort, and New York, Pennsylvania and Maryland, with the north and south line just east of Buffalo.

Scott Turner, recently appointed director of the Bureau of Mines, succeeding H. Foster Bain, is a mining engineer of broad and practical experience, who has opened and operated mines in many sections of the world. Since 1919, Mr. Turner has been construction engineer for the Mining Corporation of Canada, Toronto, and in 1921 he was chief engineer of the United States Bureau of Mines. For five years he operated coal mines on the island of Spitzbergen. This was 825 miles north of the Arctic circle, where he claimed and maintained possession of 600 square miles under the protection of the American flag. He is a survivor of the Lusitania, sunk without warning by a German submarine on May 7, 1915. Mr. Turner is a member of the American Institute of Mining and Metallurgical Engineers and the Canadian Institute of Mining and Metallurgy. He was born in Lansing, Mich., July 31, 1880.

R. F. Mann has been appointed purchasing agent for the Warner & Swasey Co., Cleveland. He has been connected with that company's engineering department for the past ten years.

Glenn D. East has resigned as Cleveland district sales manager of the Newton Steel Co., Youngstown, Ohio, effective Dec. 1, to become sales manager of the Empire Steel Co., Cleveland, formerly the Empire Rolling Mill Co. D. H. McVay, who is at present district sales manager of the Newton company in Buffalo,

will be transferred to Cleveland to succeed Mr. East.

J. C. Hoot, for several years purchasing agent for subsidiaries of the United States Steel Corporation and for the past year director of purchases for the Sinclair Consolidated Oil Corporation, has resigned his latter position to become associated with the Alliance Machine Co., Alliance, Ohio, as vice-president and assistant treasurer.

E. A. Condit, Jr., has been elected vice-president in charge of sales of the Rail Joint Co., 61 Broadway, New York.

Fred C. Trubshaw, superintendent Vilter Mfg. Co., Milwaukee, was elected president of the Milwaukee Engineers' Society at its recent annual meeting.

Henry Voltmann, W. S. Rockwell Co., New York, gave an illustrated talk on heat application before a large number of the Boston chapter of the American Society for Steel Treating, in Walker Memorial, Massachusetts Institute of Technology, Cambridge, on Friday evening, Nov. 6.

C. J. Priebe has joined the Ross Heater & Mfg. Co., Buffalo, as sales engineer, with offices at 2 Rector Street, New York.

A. L. Humphreys, president Westinghouse Air Brake Co., Pittsburgh, and Hamilton Stewart, vice-president Harbison-Walker Refractories Co., Pittsburgh, have been elected trustees of the University of Pittsburgh. Mr. Humphreys has been appointed for the term ending in 1928 and Mr. Stewart for the term expiring in 1927, both appointments being to fill existing vacancies.

J. W. Swaren, consulting engineer, has opened an office in the People's Life Insurance Building, Washington. His office in the Union Trust Building, Cleveland, will be maintained.

P. M. Brotherhood, 25 Church Street, New York, has opened a Buffalo office in charge of P. M. Brotherhood, Jr., who has been manager of Manning, Maxwell & Moore's office in that city.

Lewis M. Billingslea has resigned from the sales department of Rogers, Brown & Co., Chicago, and has become associated with A. H. Billingslea, Inc., publishers' representative, 270 Madison Avenue, New York.

A. C. Peters has been appointed sales engineer of the Power Plant Engineering Co., Seattle. He will be in charge of the electric heating department. F. W. Caleson has been made purchasing agent.

Algoma Works Curtail Operations

Following recent announcements that the Algoma Steel Corporation, Sault Ste. Marie, Ont., had orders for rails from the Canadian Pacific Railway and the Canadian National Railways amounting to upwards of 60,000 tons, and orders on hand sufficient to keep its works running into next February, it is now announced that operations at the rail mill will be suspended after Nov. 7, and the forces employed will be reduced from 2200 to 800. An order from the Canadian National Railways for 35,000 tons of rails calls for delivery at the opening of navigation and the rail mill will resume operations for this work early next spring. The rolling of 30,000 tons for the Canadian Pacific Railway has been completed, after occupying the rail mill for one month following a shutdown of four months. The company proposes to keep the following in operation throughout the winter: one of its small blast furnaces, two of the seven open-hearth furnaces, the blooming mill, and the 12-in. and 18-in. mills.

OBITUARY

STEWART A. DAVIS, vice-president in charge of operations, American Sheet & Tin Plate Co., Pittsburgh, died at the Schenley Apartments, Pittsburgh, Nov. 6. His death was shockingly sudden, as he had been at his desk the day of his death and had only recently returned from a hunting trip. Mr. Davis, who was one of the late George G. McMurtrie's "boys," had been identified with the American Sheet & Tin Plate Co. and its predecessors since 1888 and had risen by virtue of hard work and close study from a clerical position to the second highest office in the company. Born in Blairsville, Pa., 58 years ago, he went to work for the Pennsylvania Railroad as a car checker in 1884. While engaged in railroad work in 1888 he attracted the notice of Mr. McMurtrie, then president of the Apollo Steel & Iron Co., Apollo, Pa., who engaged him as a clerk. He soon worked into the mills and became a skilled workman and later advanced into positions of responsibility. When the American Sheet Steel Co. and the American Tin Plate Co. were merged into what now is the American Sheet & Tin Plate Co., Mr. Davis was assistant Vandergrift district manager of the American Sheet Steel Co., under Eugene W. Pargny, now president of the American Sheet & Tin Plate Co. Mr. Pargny was promoted to the position of vice-president and general manager of sales of the company and Mr. Davis succeeded him in charge of the Vandergrift district mills. Later he was transferred to Pittsburgh as assistant to the vice-president in charge of operations; his next promotion was to the position of second vice-president and then to the place he held at time of his death. He was a member of the Masonic fraternity, the Engineers Society of Western Pennsylvania, the American Institute of Mining and Metallurgical Engineers, the American Iron and Steel Institute, the Pittsburgh Athletic Association and the Duquesne Club. Besides his widow, he is survived by two brothers, John D. Davis of Vandergrift, Pa., and W. L. Davis of New Philadelphia, Ohio.



STEWART A. DAVIS

JOHN P. WOODS, 60 years of age, president of the Kupferle Foundry Co., St. Louis, died in that city Nov. 5, following a brief illness. He was born in Selma, Ala., and after receiving his early education there came to St. Louis with his parents when 13 years old. He joined the Kupferle company in 1907 as manager, becoming president in 1920. He is survived by his widow and two daughters.

COL. AZOR R. HUNT, former general superintendent Homestead Works, Carnegie Steel Co., died at the home of his daughter, Mrs. Alfred C. Howell in Dedham, Mass., Nov. 2, aged 77 years. When he resigned in 1915 as general superintendent Homestead Works, he had a record of 28 years with the Carnegie Steel Co. He started as night foreman in 1887 at the Homestead Steel Works. Later he was sub-foreman of construction during the building of the 32-in. slabbing mill, of which he became foreman when it was placed in operation. His next position was superintendent of the slabbing and blooming mills. Then he was made general superintendent of Duquesne Works and in 1903 when Alva C. Dinkey was promoted from the superin-

tendency of the Homestead Works to the presidency of Carnegie Steel Co. he appointed Col. Hunt as his successor. He held that position until 1915, when he retired from active connection with the steel industry, being succeeded by Alfred A. Corey. He was a prominent figure in Masonic activities, and received his military title in State National Guard service.

JOSEPH JANSON, president of the Janson Steel & Iron Co., Columbia, Pa., died in Hamburg, Germany, Oct. 20. He was born in Germany 73 years ago and came to this country with his parents when but three years of age. He was a prominent banker of Columbia, and with his brothers, Frank and Valentine, each of whom have died within a few years, he organized the Janson Steel & Iron Co., in 1894, and has since been its president.

ROY CASTLE GREENFIELD, mechanical engineer Allis-Chalmers Mfg. Co., Milwaukee, since 1908, and identified with the development of mining machinery and equipment, died Oct. 28 after an illness of two years. He was manager of the Mexico City offices until the revolution forced its discontinuance and returned to Milwaukee to become attached to the main works engineering staff. Mr. Greenfield served throughout the Spanish-American war and injuries received in Porto Rico were indirectly responsible for his death.

HARRY TOWNSEND HOOPES, assistant to the general manager Standard Sanitary Mfg. Co., died at his home in New Brighton, Pa., Oct. 30. He was born in New Brighton 49 years ago and was a graduate of the University of Pittsburgh. He was instructor of manual training in the Allegheny High School for 10 years before assuming the position he held at the time of his death.

WILLIAM M. REES, for many years treasurer James Rees & Sons Co., Pittsburgh, builder of steamboats, died at Atlantic City, N. J., Nov. 4. He had been in poor health for the past three years.

ROBERT PALMER QUEEN, foundry superintendent Mt. Vernon Car Mfg. Co., Mt. Vernon, Ill., since 1902, died suddenly Oct. 28 after a heart attack. He was born in Bardstown, Ky., 54 years ago. He was well known in the foundry trade and has been engaged for the past two years in constructing the new foundry which the Mt. Vernon Car Mfg. Co. is about ready to place in operation. He is survived by his widow and one sister.

ARTHUR H. FLEET, sales manager Cutler-Hammer Mfg. Co., Milwaukee, died Oct. 30 after an illness of four months which necessitated his retirement from active business in July. He was born 45 years ago in Lynchburg, Va., graduated from the electrical engineering course of Virginia Polytechnic Institute and in 1912 became associated with the Cutler-Hammer company. He was a member of the American Institute of Electrical Engineers and other technical societies.

B. H. AHRENDT, aged 49, general manager of the New Method Stove Co., Mansfield, Ohio, died suddenly at his home in that city Oct. 31.

Technologic paper No. 295 of the Bureau of Standards deals with "initial temperature and mass effects in quenching." It was prepared by H. J. French and O. Z. Klopsch. The paper gives results of quenching experiments with high-carbon steels, in which the speed of cooling was determined at the center of spheres, rounds and plates of various dimensions quenched from various temperatures into different coolants, such as water, oils, air, etc. The cooling velocity at 720 deg. C. is taken as the best measure of hardening produced. Relations are developed between this and the size and shape of steel quenched. Typical examples are given, showing how the data were derived and used.

Machinery Exports to Germany

Increased Shipments of First Half of 1925 Not Being Maintained—Present Situation in Germany Causes Alarm—Credit Conditions Poor

WASHINGTON, Oct. 31.—Although a few months ago American exports of machine tools to Germany were flowing in large volume, it appears probable that this trade will not be sustained, according to the Industrial Machinery Division of the Bureau of Foreign and Domestic Commerce. While there appears ample demand for these tools in that market, conditions there cripple business and suggest that this trade will be seriously affected.

Past Experience in German Market

On the average, during the five years 1909-13 inclusive, Germany absorbed \$2,280,000 worth of American metal-working machinery. In 1913, this volume was \$3,175,000. During the war this trade collapsed and, following the Armistice, the volume was small because of German import embargoes. During the life of these embargoes a certain small volume of business was possible if special import licenses were secured. The experience through 1923 was as follows:

1919....	\$8,746	1922....	\$77,120
1920....	144,192	1923....	209,474
1921....	118,393		

In the latter part of 1924 this embargo was lifted and total business for that year was \$545,315. For 1925 there was a marked increase: Shipments to Germany in the first half of 1924 approximated \$210,000, but the volume during the corresponding period of 1925 was nearly \$1,500,000. However, since about the first of August these sales have dropped sharply.

Long Credit Terms Demanded

Trade Commissioner Pilger says that the drop "is a reflection of the general business condition, which at present is bad. Many dealers are pessimistic. Customers are willing to buy but are asking terms exceeding six months or one year, which are practically impossible. Many potential purchasers are in such a financial condition that they will probably have to undergo reorganization and, therefore, do not constitute good credit risks. The alternative is presented, of doing business by taking a chance on long credits to questionable firms, or of curtailing the amount of business. Customers have the 'desire' to buy our equipment but have not the necessary money. German machinery manufacturers have seen the new types of special machines which met with a good market during the early months of 1925, and are rapidly bringing out copies which can be sold at a lower price, even though their effectiveness and reliability have not been demonstrated.

Adverse Factors in the Industrial Situation

"There is no reason to believe that machinery sales in Germany will have a better volume before spring, as an improvement in the general industrial situation is not probable for the following reasons: Many business houses are operating ineffectively; artificial regulations of all sorts prevent the normal operation of natural economic laws; a shortage of capital exists as the collapse of the old reichsmark wiped out much of the capital of the country and since that time the people as a whole have been living beyond their means; there appears to be a gradual drying-up of the ready sales of German securities to American investors.

Extension of Credit Must Be Carefully Watched

"In general, business does not depend so much upon the prices quoted as upon the terms offered, but the business might better be declined unless some arrangement can be made under which American manufac-

turers, by group effort, are continuously able to obtain credit information and keep in touch with local conditions to an extent which would justify the sale of equipment on credit or the handling of stocks on some safe consignment basis.

"It appears, also, that, since the embargoes were lifted on Oct. 1, and the new German tariff came into operation, the German banks are restricting credit to be used to cover import transactions. Probably from the German point of view this is a necessary policy, although it restricts American business. Nevertheless, it probably will be a necessary policy until the German balance of trade is turned and exports exceed imports.

"Much of the machinery that has been imported has been for German manufacturers of automobiles, but those manufacturers are still uncertain as to their ability to compete against foreign cars, even though their product is protected by a high tariff, because their production volume is limited. Consequently, they are maintaining a careful watch over costs and will continue to do so until they know definitely their actual position. Therefore, for the time being, they are not buying new machinery.

Seasonable Factors

"It should be remembered, also, that some of the rush of American machinery business which developed during the past spring and summer was due to the fact that the dealers were stocking up. This stock has not yet been sold to manufacturers. Also, July and August are vacation months and September, October and November are usually poor months for the sale of machinery to be used in the manufacture of automobiles, bicycles, motorcycles, etc., which will not be put on the market until the following March."

American Machinery Needed

Unquestionably the industries of Germany need American machinery. In pre-war years they depended on this equipment to a great degree, but it has not been readily available to them for nearly a decade.

In foreign markets the German industry, weak in capital and paying high interest rates, is finding great difficulty in competing with foreign industries which extend credit at the lowest terms for periods in excess of a year. For example, according to the German Machinery Manufacturers Association, the English industry pays 1 per cent for Government credit for export purposes while the German industry pays from 10 per cent to 18 per cent. On the other hand, the technical basis of German industry is sound. Production methods and quality of product are well up to the necessary standards. There is, therefore, no reason for excessive pessimism.

Berlin Representative Confirms Statements

Commercial Attaché Herring speaks also of labor difficulties, and the German machinery industry is experiencing difficulties that form a sharp contrast to the active business they enjoyed during the period when the mark was depreciating.

Mr. Herring's report is as follows:

The German machine industry in nearly all branches continues to complain of slack business and generally unfavorable production conditions. The credit situation has not improved, and indeed in some plants the shortage of working capital has grown more acute, because of the greater conservatism of the banks since the difficulties of certain large German concerns became known. After a considerable period, during which there were no wage troubles, there have been in recent weeks many disagreements, together with a steadily upward wage tendency. Despite the current

slump in the coal and steel trades, it is claimed that the cost of raw materials is too high.

Skilled Labor Affected by War and Inflation Conditions

The machine industries, particularly the more technical branches, are now feeling the full effects of the war and inflation conditions affecting skilled labor. During the war there was an inevitable discontinuance of the apprenticeship system, which previously insured a regular and adequate supply of skilled labor for the various branches of German industry. Young men under military age were offered much higher wages in munitions plants and elsewhere than the meager apprenticeship pay. During the inflation period the apprenticeship system suffered further by the slight spread between the pay of skilled and unskilled workers. This unfortunate equality of pay (the difference was seldom more than 15 per cent) was at one time a cardinal principle with the labor unions, who maintained, with a good deal of justification, that the average pay of highly skilled workmen during that troubled period was scarcely more than a "minimum existence" wage and that any wage spread sufficient to encourage common labor to qualify as skilled workers was impossible.

General Dullness in Machine Tool Industry

Business in the machine tool branch is dull, except for one or two special lines. Textile machinery producers are complaining about increased British competition in the export markets, but domestic orders

have increased somewhat. Prospects seem to be good for agricultural machinery, as there is promised a record-breaking harvest. Woodworking and sawmill equipment is in small demand, and the production of heavy motors, hoisting machinery, and transportation equipment is being sharply curtailed.

Hopes Placed in the Negotiation of Commercial Treaties

Machinery industries are thoroughly dissatisfied with the long delay in negotiating and adopting commercial treaties with countries offering an important market for their products. It will be recalled that in Spain, Italy, France, the British Dominions and elsewhere, German goods are now or have been subject to higher tariff duties than those from competing countries, and the machinery industries hope to increase exports materially when the existing discriminations are removed.

These industries are particularly concerned over the present status of the negotiations with Spain. The ratified commercial treaty between Germany and Spain was later denounced under the clause allowing either country to retire from the agreement upon three months' notice. Following the conclusion of the treaty, it was reported that heavy machinery orders had been placed in Germany, but that in many cases it would be impossible to finish and deliver the goods within the three-month period. Germany's denunciation of the treaty was followed, as expected, by many cancellations by Spanish importers unable to pay the prohibitive duties now levied.

REVIEWS NAVY'S MIGHT

Connection with Budding Steel Industry Traced by Navy Day Speaker

WASHINGTON, Nov. 7.—Speaking here Oct. 27 in celebration of Navy Day, Admiral W. E. Eberle, Chief of Naval Operations, recited briefly but interestingly the history of the American Navy and the important part it has played in developing the iron and steel industry of this country. The Navy has made such demands upon the industry that the country leads the world in the output of high-grade steel and steel products. In the course of his remarks Admiral Eberle said:

"It was during this war (1812) that the first battleship propelled by steam was authorized, and for years developments were made along those lines. Ordnance material was improved upon and, during the period from 1815 to 1850, the gun was developed from the smooth-bore throwing a spherical cast iron ball weighing 24 lb. to an 11-in. gun throwing a shell of 136 lb. In 1875 breech-loading guns made their appearance.

"The Civil War saw the adoption of the ironclad and a reversion to the Greek and Roman method of fighting by means of the ram. As a result of the intensive building during the Civil War, our Navy became the most powerful in the world but, following the war, it again was neglected and in the short span of 10 years it became so impotent as again to deny us the respect of foreign nations. Our prestige disappeared, and 1874 marked the lowest point to which the Navy had sunk since the days when ransom had to be paid to Algiers.

Renaissance of the Navy

"But in 1881 the tide turned in favor of the Navy. The interest of Congress was aroused and an era of shipbuilding was begun which eventually resulted in the construction of the famous 'White Squadron.' These were soon followed by the first modern battleships, the Indiana, Massachusetts and the famous Oregon. This building program caused the development of large steel mills and other types of manufacturing plants, thus building up the nucleus of a force trained in the manufacture of steel construction that has enabled this country to lead the world in output of high-grade steel and steel products.

"As the various types of ships were authorized, new ideas were introduced, experiments were conducted and improvements were made, until finally there has resulted the magnificent 32,000-ton oil-burning electric-drive battleship of the present day, capable of hurling a shell weighing a ton farther than the eye can see the foe. Nor was progress in construction limited to the battleship, for the introduction of the submarine, the destroyer, the scout cruiser and, more recently,

the aircraft, opened new fields to be worked and improved upon.

Contrasts with Old Conditions

"What would John Paul Jones say, could he return to pace once more the deck of a battleship, and see it surrounded and protected by its screen of destroyers and submarines? What would he say, could he see the airplanes gracefully rising from the deck of a carrier and disappearing into the blue overhead? What would he say could he listen in on the radio and hear the reports of scouts hundreds of miles away, or the reports of planes directing the fall of shot beyond the horizon? Certainly, since the days of that heroic figure, has our Navy changed in its material aspect, in its diversified types, in its tremendous might."

Relation Between Heating Value of Gas and Its Usefulness

Technologic Paper No. 290 of the Bureau of Standards, compiled by E. R. Weaver, gives a critical review of the published data connecting up the usefulness of a gas to the consumer with its heating value. There is general agreement that, in all kinds of commercial appliances, the potential heat of the gas is used with substantially equal efficiency, whatever the other properties of the gas may be. It was found that, within certain limits, the volume of gas used by a community is inversely proportional to the unit heating value of the gas supplied. Thus, the amount of potential heat used by a community, in the form of gas, does not appear to be affected by its unit heating value.

The review has been confined almost exclusively to facts expressed in definite figures; opinions and theory have had scant attention. Available data have included direct determination of useful effects obtained by burning gas in various appliances and statistics covering the relative amount of gas used, before and after changes in its heating value. Data of both classes were surprisingly consistent, considering the number and variety of outside influences to which they were subject. Copies of this publication may be obtained from the Superintendent of Documents, Washington, for 30c. each.

The demand for a 5-day week in the building trades, which threatened to become a serious issue early in the year, has not met with favor on the part of the workmen, according to the Association of Building Trades Employers. It was advocated to provide employment for more men. But in view of the fact that the country is employing every skilled building mechanic, the argument in its favor collapsed. The issue, however, is not dead and may be expected to come up whenever activity slackens.

Drop of Franc Dominates Europe

(Continued from page 1333)

dispute. The competition our manufacturers have to face is mainly Belgian, French and Luxemburg, the German producers being able to do little in the way of export trade and being able to obtain full prices from their home markets.

Relief Measures Considered

On all sides one hears of subsidies, etc., as the salvation of the steel trade of this country, but this is an open question and certain sections, as the re-rollers who depend upon the cheap foreign raw material, are protesting. One solution is said to be the scrapping of obsolete works and the concentration upon specialties. For this there is a good deal to be said, as many plants are out of date, besides which their situation causes heavy charges in rail traffic to ports. The whole question, however, is complex and it looks as though the industry will be left to fend for itself as best it can.

An encouraging feature is the securing by Cammell, Laird & Co., against world competition, of an order for 220 broad-gage steel coaches for the Indian State Railways, 110 coaches being for the East Indian Railway and 110 coaches for the North-Western Railway.

FRENCH IRON AND STEEL

Market Shows Slight Improvement in Some Spots—Rails and Sheets Active

PARIS, FRANCE, Oct. 16.—Failure of the Washington negotiations has resulted in renewed tension of the pound and dollar. Our exporters have to support the increase of prices on the raw materials they import, and they suffer particularly from the instability of the franc. It is, therefore, unjust to say that we profit wholly from the decrease of our money. In spite of all, the home demand keeps its previous level, and would even show a tendency to improve if the future of the producers' entente were definitely fixed. Building continues rather active, specially in the Parisian area, favored so far by a beautiful late season. Export demand is not important.

Coke.—During the first 15 days of October the O. R. C. A. has received from the Ruhr 112,738 tons of coke; or a daily average of 7515 tons. Some coke makers of the Nord and Pas-de-Calais have agreed to a reduction of 5 fr. per ton on metallurgical coke for large contracts. This enables the O. R. C. A. to ask from the State a parallel reduction on the price of indemnity coke. The French Government accordingly has agreed to an abatement of 1.20 fr. per ton. Indemnity coke will in consequence be reduced, from Oct. 1, from 149.95 fr. to 144.75 fr. (\$5.80, at 4c. per franc), including all O. R. C. A.'s expenses.

Pig Iron.—On the home market, no appreciable change; foundry demand is slightly stronger; but the improvement should not be exaggerated. Some blast furnaces have completely sold their October output. Orders are now passed to a cooperative society of foundrymen who sell 40 per cent of the production of blast furnaces making phosphoric foundry iron. Prices for October are strictly sustained and the conditions of the entente are, in this branch, generally respected. For November and December the base price of foundry iron, No. 3 P. L. will be maintained at 345 fr. (\$13.80) per ton, ex-producing works, but producers cannot, for the present, sell for delivery beyond Nov. 30.

Export business is relatively satisfactory because of the tension of the exchanges; however, prices which were bettered the previous week have only just been maintained at their former level (340 Belgian francs, f.o.b. Antwerp, or 347 French francs). In hematite iron the market is generally unchanged. Prices, with few exceptions, have kept up to the rate of the entente. Several small amounts of British hematite have come

in lately, because it was often impossible to find in France the exact yields desired by consumers.

Semi-Finished Products and Rolled Steels.—The provisional agreement of the steel works, based on equality of output with consumption, continues to function. Prices are those of the O. S. P. M. before Sept. 30, but f.o.t. at works. It would perhaps be too much to say that they are observed by all sellers, because the competitive spirit of producers who need to refill their order books. Certain orders have been accepted at a few francs below normal prices.

Orders for about 10,000 tons of Broca rails are divided among four plants of the East and of Lorraine, at 630 to 650 fr. (\$25.20 to \$26) per ton at plant. The prices of the fishplates for these rails vary from 580 to 650 fr. (\$23.20 to \$26). On the other hand, the State Railroads have received tenders for 7500 tons of steel sleepers, standard type, and Vignole rails of 46 kg. per m. (92 lb. per yard), at prices from 540 to 580 fr. (\$21.60 to \$23.20).

Lorraine, having need to refill order books with semi-finished products, is accepting easier prices for export in rolled steel. Lorrainers, Luxemburgers, Belgians and Germans are quoting almost identical prices, leaving aside occasional rebates for large orders. For export, blooms are £4 6s. 6d. to £4 7s. (\$20.93 to \$21.05); billets, £4 9s. 6d. to £4 10s. (\$21.66 to \$21.78); larges, £4 12s. to £4 12s. 6d. (\$22.26 to \$22.39), all f.o.b. Antwerp. For export, beams are £5 (1.08c. per lb.); bars, £5 5s. (1.13c.).

Sheets.—In this department competition is particularly active and is exercised equally on heavy sheets and on medium and light sheets. For export the French are quoting, on heavy sheets, lower prices than Belgians. It is thus that they are enabled to quote £6 (1.30c. per lb.) for basic sheets of 5mm. (No. 6½ gage) and over.

Wire Products.—Wire rod is more than ever firm. For export, the French are demanding £5 15s. (\$27.83); the Luxemburgers, £5 16s. (\$28.07).

Foundry.—Situation generally unfavorable; competition is such that prices are decreasing, particularly in pattern foundries; in malleable, competition is more active, most of the works being in need of orders; however, prices are sensibly on the same level as previously.

BELGIAN MARKET WEAK

French and German Competition Force Prices Down—Demand Light

ANTWERP, BELGIUM, Oct. 14.—Weakness prevails again on the market and business remains excessively difficult. The number of orders coming from abroad is more limited than ever while the domestic demand is languishing. South America, at all times a good customer, is taking little. China and Japan as buyers do not seem to exist at all. Business with the Pacific Coast is more than quiet. Only a few, but good, orders for shipment to the Atlantic Coast seem to have developed.

French competition is becoming strong. It is easy for French makers now to obtain business on account of the sudden and great depreciation of the French franc. German sellers also reappear on the market and show a good activity, especially for beams and sheets. Luxemburg makers on the whole, as well for export as for our domestic market, show a larger resistance and in general maintain high prices.

Finished Steel.—Notwithstanding that the lower rates of exchange could justify higher quotations, prices show a reduction. The want of activity in demand and the reserved attitude of domestic buyers made prices give way slightly for nearly all steel commodities. Business for export is far from brilliant while in the country the demand is reduced to a minimum. German competition reappears on our domestic market and makes itself strongly felt on foreign markets. French makers also come forward with excess

sively low and favorable prices, assisted by the sudden fall of their money.

Nominal price for bars at £5 6s. (1.14c. per lb.) did not seem to attract business. Orders placed were certainly at not more than £5 5s. 6d. and for important amounts perhaps £5 5s. per ton (1.13c.) f.o.b. Antwerp. Domestic prices ran 580 and 585 fr. per metric ton at consumers' works.

Orders for beams are so scarce that this department is wholly depressed and competition from neighbors is active. Germans accept business at £4 19s. (1.07c.), a quotation also advanced by Lorraine makers. Belgian prices remain £5 (1.08c.) for export, with 560 and 565 fr. inland.

Wire rods do not maintain the advance in prices obtained lately. The running quotation is now £5 15s. and £5 16s. (\$27.83 and \$28.07). Hoops, as the production is small on account of the strike, maintain their previous prices. Prices in consequence are as follows:

			C. per Lb.
Bars (basis)	£5 6s.	or \$25.75	or 1.15
Beams	5 0	24.30	1.08
Angles	5 6	25.75	1.15
Channels	5 3	25.00	1.12
Rods	5 15	28.00	1.25
Corrugated bars	5 18	28.70	1.28
Steel hoops	7 6	35.25	1.58
Cold rolled hoops	11 10	56.00	2.50
Wire rods	5 16	28.20	...

Sheets.—Weakness prevails; prices are reduced under pressure of buyers and want of demand. Belgian makers tried to counteract the drop but had to make concessions to get the little business available against French and German competitors, who at first reduced their quotations. The asked price for 3/16-in. sheets, £6 2s., was brought to £6 for the orders placed, with £6 10s. for 1/8-in. sheets. The thinner sizes maintain prices unchanged but show signs of weakness. Prices are, f.o.b. Antwerp, as follows:

			C. per Lb.
Thomas steel sheets—	£6 0s. 0d.	or \$29.20	or 1.30
1/8-in. and up	6 10 0	31.60	1.41
1/4-in.	7 15 0	37.70	1.68
1/2-in.	8 12 6	42.00	1.88
Checkered plates (basis)	6 2 0	29.65	1.32

Blooms, Billets and Slabs.—The tendencies of this market are uncertain and irregular. Prices differ much from maker to maker, but in general move toward the lower side. Certain makers have retired from the market or quote higher prices, while other works accept business on a somewhat shaded price. Luxemburg prices are rather on the high side, while Lorraine makers look for orders with easier quotations. Current prices are:

Ingot	£3 18s.	or \$18.95
Bloom	4 7	21.15
Billet	4 10	21.90
Slab	4 13	22.60

Iron.—Quotations have not changed. Business is not large but production also remains reduced on account of the strike. In such circumstances the demand is sufficient to maintain previous quotations. No. 3 iron is worth £5 9s. to £5 10s. (\$26.75) f.o.b. Antwerp, with 600 Belgian fr. for domestic supply.

Pig Iron.—The pig iron market is losing its last stability. Hesitation appears in the prices. Domestic demand is still satisfactory and stocks available are not large, but export markets are not buying. Phosphorus foundry No. 3 with silicon 2.5 to 3 per cent is quoted at 325 and 330 fr. at furnace, which means 340 and 345 fr. per metric ton f.o.b. Antwerp. This means a regression of up to 10 fr. per ton from previous prices. For the same quality, Luxemburg and Lorraine works quote the same prices, i.e., equaling \$15.75. Thomas pig iron is approximately 325 and 330 fr., i.e., about \$15.50, f.o.b. Antwerp.

Belgian Bessemer hematite became dearer, 425 fr. at furnace or \$19.80, f.o.b. This price will not be maintained on account of English competition. In fact, with the higher value of the franc, East Coast hematite, which costs 78s. 6d. and 79s. c.i.f. Antwerp, turns out to approximately 420 and 425 fr. on truck at Antwerp, duties paid. Semi-phosphorus foundry pig iron of French origin may be had at 380 to 390 fr., according to quality. Sales of Dutch semi-phosphorus were made in Belgium at higher prices.

GERMANS MARKING TIME

Iron and Steel Markets Quiet—Machinery a Bit Better—Fusions in the Air

BERLIN, GERMANY, Oct. 24.—The past fortnight has brought signs of improvement in the market for products controlled by the Raw Steel Syndicate. No change has taken place in prices and none is expected in November. The syndicate will probably retain unchanged through November the present 35 per cent reduction of output. In industry as a whole no improvement has taken place, but the deterioration of the late summer has slackened. The Locarno Agreement, followed by a relatively favorable monthly foreign trade report, has improved business sentiment.

Fusions and Agreements

An agreement has been come to between German and Belgian wire-rod interests. Neither country will invade the other in this domain and minimum prices—for the present £5 5s. (\$25.40) per ton—will be maintained. Negotiations for the Ruhr Steel Trust continue. Provisionally has been created a small "Research Company," which will prepare the way. Differences arose concerning the respective participation "quotas" of the combining corporations. It is reported provisionally that Thyssen will get a 27 per cent share, the Deutsch-Luxemburg and Gelsenkirchen Corporations (which are already in semi-fusion) together 39 per cent, Phoenix, including the Van der Zypen Corporation, 28 per cent, and Rhenish Steel 7 per cent.

Other difficulties have been caused by the fact that several of the combining corporations have associations outside of the steel business. Rhenish Steel is associated with the Aniline Concern, and the Deutsch-Luxemburg and Gelsenkirchen with the two Siemens companies. The latest project is that a single corporation, embracing coal, iron and steel, shall be formed; but that the present corporations shall remain as holding companies for their parcels of stock in the new corporation. Trade journals figure that savings amounting to from 5 to 10 m. per ton will result from the fusion.

Market Mostly Quiet

Increased activity of the market does not affect pig iron, which remains dull. In the home market is a fairly active demand for bars; in the export market, chiefly for wire. Some corporations have orders equal to full capacity; others find the Syndicate's present 35 per cent reduction of output insufficient, and demand a 45 per cent reduction. The new drop in French franc exchange has strongly helped French competition in semi-finished steel; and French steel is being increasingly imported into South Germany. The Thick Sheets Syndicate reports bad business. The German export price is £6 3s. per ton (1.33c. per lb.), but Belgium offers at \$6.

Some new moderate-sized export orders for bars during the last fortnight are not sufficient to affect the market materially. Demand for structural forms has declined for seasonal reasons.

Cash Shortage Breeds Heavy Discounts

The steel-consuming manufacturing industries all complain of shortage of money. This is so marked in the Solingen cutlery branch that discounts of 30 to 60 per cent are being granted to buyers who can pay cash. The recent fall Fairs brought no improvement in the fine steel selling market. Export has, however, somewhat improved, and sales abroad contain an increasing proportion of high-quality, high-priced wares. The August trade report shows large increases in sales of Solingen wares to the United States and to the Netherlands.

Scrap continues inactive, and prices are low. Consumers, being short of money, buy from hand to mouth, but there is sign of a growing demand for blast furnace scrap. Prices are, in marks per metric ton: steel scrap, 50 to 51 (\$12.10 to \$12.35 per gross ton); solid scrap, 47 to 48 (\$11.35 to \$11.60); turnings, 38 to 40 (\$9.20 to \$9.68).

Machinery Markets and News of the Works

SLIGHT EBB IN ORDERS

Volume of Inquiry Good but Chiefly for Single Tools

Continental Motors Corporation Enters Market—Seaman Body Corporation List Expected

A SLIGHT recession in volume of orders placed is the report from most machine tool buying centers. Although involving for the most part single tools, the aggregate of new inquiries is an encouraging feature, presaging continued good business in the immediate future.

The question of delivery is becoming a definite factor, delivery on some types of tools being lengthened by some makers to two or three months. In many plants in the Cincinnati district production of machine tools is being maintained at a high rate and orders on

hand are said to be sufficient in some cases to warrant peak operation over the remainder of the year and longer.

There has been some slowing down in automotive buying, but significant purchases by that industry are expected before the close of the year.

The Cadillac Motor Car Co. is reported in the market for a number of lathes and other equipment. Among other items, 30 grinders are wanted by the Continental Motors Corporation, and the Seaman Body Corporation, Milwaukee, is understood to be working on an extensive list. The requirements of the Eaton Axle & Spring Co., which was an active buyer during the week, will include 40 single-spindle drilling machines.

Railroad buying has been small. The New York, New Haven & Hartford Railroad Co. has taken bids on seven large machines.

A feature of the crane market is the purchase of 31 cranes by the Anaconda Copper interests.

New York

NEW YORK, Nov. 10.

ACTIVE inquiry from users of machine tools seems to have diminished slightly since the first of the month, but there is still a good volume of business before the market which is being increased by the continued appearance of fresh inquiries for single tools. Makers of automobile parts and accessories are the principal factors of activity, with purchasing by the railroads still at a low ebb. The International Motor Co., New Brunswick, N. J., has closed on a few tools the past week. The Wright Aeronautical Corporation of America, Paterson, N. J., reported last week as in the market for a list of tools, is understood to have closed on part of its requirements, including an engine lathe, turret lathe, drill press and milling machine.

In addition to the foregoing purchases, Pratt & Whitney equipment has been purchased by the Hercules Corporation, New York, two 16-in. swing, geared head lathes; National Twist Drill Co., Detroit, two 8-in., vertical rotary surface grinders; Delco Light Co., Dayton, Ohio, an automatic centering machine and jig boring machine; Westinghouse Electric & Mfg. Co. a jig borer and the Harley-Davidson Motor Co., Milwaukee, a jig borer.

Contract has been let by the Acme Cement Corporation, 8 West Fortieth Street, New York, to the Turner Construction Co., for a one and two-story addition to its mill at Catskill, N. Y., to be equipped primarily as a crusher unit, to cost \$150,000 with machinery. McClellan & Junkersfeld, 68 Trinity Place, New York, are engineers.

Moore & Landseidel, 148th Street and Third Avenue, New York, architects and engineers, have plans for a five-story automobile service, repair and garage building, 180 x 180 ft., at Fordham Road and Lorillard Place, to cost \$550,000 with equipment.

The Consolidated Gas Co., 130 East Fifteenth Street, New York, has plans for extensions and betterments in its one-story steam power house at East 111th Street and First Avenue to cost about \$13,000.

The Empire Plating Works, 77 Madison Avenue, Albany, N. Y., have plans for a three-story addition, 25 x 35 ft., to cost \$25,000 with equipment. J. S. Shattuck, Benson Building, is architect.

The American 3-Way Luxfer Prism Co., 353 Webster Avenue, Long Island City, manufacturer of vault lights, has leased a factory to be erected on First Avenue for a new plant.

The Krischers Mfg. Co., 265 Calyer Street, Brooklyn, manufacturer of buckles and metal specialties, has filed plans for a three-story addition at 265-73 Calyer Street, 100 x 165 ft., to cost \$85,000. Louis F. Waillant, 34 Graham Avenue, is architect.

De Paoli Brothers, 338 West Thirty-eighth Street, New York, manufacturers of tile products, have revised plans for a new three-story plant, 38 x 100 ft. Louis De Paoli is president. C. I. White, 101 Park Avenue, is architect.

George Kern, Inc., 349 West Thirty-seventh Street, New York, meat packer, has arranged for a bond issue of \$675,000, a considerable portion of the fund to be used for the construction of a meat-packing refrigerating and distributing plant now under way on Eleventh Avenue, near West Thirty-seventh Street. George Kern, Sr., is president.

The East Shore Ice Co., 57 Bay Street, St. George, S. I., will build a one-story ice-manufacturing plant at New Dorp, S. I., 65 x 156 ft. Bertram G. Eadie is president. James Whitford, Staten Islander Building, Tompkinsville, S. I., is architect.

The Lasky Motor Co., Montrose Avenue and Leonard Street, Brooklyn, has plans for a two-story service, repair and garage building, 100 x 110 ft., to cost \$85,000. Tobias Goldstone, 29 Graham Avenue, is architect.

The Bronx Builders Machine Co., Inc., 680 East 133rd Street, New York, has filed plans for a one-story works, 37 x 100 ft., to cost \$20,000.

The Elizabeth Supply Co., 1057 East Grand Street, Elizabeth, N. J., builders' materials, is considering the construction of a new wood-working plant and lumber mill at Plainfield, N. J., to cost \$50,000 with machinery.

The Crown Chemical Co., Bound Brook, N. J., has acquired the plant and business of the Monmouth Chemical Co., Keyport, N. J. Extensions and improvements will be made to cost about \$100,000, of which more than one-half will be used for the purchase of new machinery. The company proposes to remove its Bound Brook plant to the new location.

Officials of the Monroe Calculating Machine Co., 555 Mitchell Street, Orange, N. J., have formed a new company of the same name under Delaware laws, with capital of \$15,000,000, to take over and expand the present organization. J. R. Monroe is president.

The Knickerbocker Ice Co., 51 East Forty-second Street, New York, will build a one-story ice-manufacturing plant at Garwood, N. J. C. Leslie Weir is company architect.

The New Jersey Power & Light Co., Dover, N. J., has acquired the property of the Raritan Valley Hydro-Electric Co., operating in a portion of Somerset and Hunterdon counties. Extensions and betterments are planned, including additional equipment.

The Oxweld Acetylene Co., 640 Frelinghuysen Avenue, Newark, N. J., manufacturer acetylene welding apparatus.

The Crane Market

THE outstanding feature of the week's business in electric overhead traveling cranes was the completion of awards on the several lists of cranes for the Anaconda Copper Mining Co., Chile Exploration Co. and Andes Copper Mining Co., New York. Among current overhead crane inquiries is a request for prices on a 10-ton, 110-ft. span electric crane from the Palmer Steel Co., Springfield, Mass., and the inquiry of the United States Cast Iron Pipe & Foundry Co., Burlington, N. J., for a 15-ton electric crane for Scottsdale, Pa. There is a good volume of inquiry for locomotive cranes and considerable interest among prospective purchasers in used equipment, but few sales are reported this week.

Inquiry in the Pittsburgh district is fairly good. The Latrobe Electric Steel Co., Latrobe, Pa., is in the market for another crane for its new stainless steel plant, and the Vulcan Mold & Iron Co., Latrobe, is another possible crane purchaser. The Wierton Steel Co. has contracted for its new loading and unloading dock, the first step in extensive plant enlargement which, it is expected, will require a number of cranes.

Among recent purchases are:

Andes Copper Mining Co., 25 Broadway, New York, six 25-ton, two 15-ton, two 5-ton and two 3-ton electric overhead cranes for use in Chile reported purchased from the Harnischfeger Corporation and one 85-ton overhead and two 60-ton smelter cranes for Chile from the Morgan Engineering Co. and one 5-ton hand power crane, reported purchased from the Armington Engineering Co.

Chile Exploration Co., 25 Broadway, New York, one 100-ton electric overhead crane from the Morgan Engineering Co. and three 30-ton, one 20-ton and three 10-ton overhead cranes from Manning, Maxwell & Moore, Shaw Electric Crane works.

Anaconda Copper Mining Co., 25 Broadway, New York, two 20-ton, two 10-ton and one 5-ton overhead cranes for Great Falls and Butte, Mont., and Perth Amboy, N. J., from

the Whiting Corporation, and one 30-ton and two 5-ton cranes for Inspiration, Ariz., from Manning, Maxwell & Moore, Shaw Electric Crane works.

United States Cast Iron Pipe & Foundry Co., Burlington, N. J., a 5-ton, 50-ft. span, 3-motor overhead crane from the Niles-Bement-Pond Co.

Norfolk & Western Railway Co., Roanoke, Va., a 10-ton, 29-ft. 7-in. span overhead traveling crane from the Niles-Bement-Pond Co.

De Laval Steam Turbine Co., Trenton, N. J., a 10-ton, 48-ft. span, overhead crane from the Niles-Bement-Pond Co.

Burrell Engineering & Construction Co., Chicago, a 10-ton crawl-tread locomotive crane from an unnamed builder.

Albert Pipe & Supply Co., Ferry and North Thirteenth Streets, Brooklyn, N. Y., two 5-ton, 1-motor, overhead cranes from the Roeper Crane & Hoist Works.

Big Four Railroad, a 10-ton, 29-ft. 7-in. span crane from the Niles-Bement-Pond Co.

David Jones Co., St. Louis, a 4-ton, 14-ft. 6-in. span, motor-driven overhead crane with electric hoist from H. D. Conkey & Co.

Brennan-Stone Co., Bridgeport, Conn., a 6-ton, 28-ft. span, motor-driven crane from H. D. Conkey & Co.

Nekoosa Edwards Paper Co., Port Edwards, Wis., a 5-ton, 13-ft. span, underhung hand power crane from H. D. Conkey & Co.

Komarek Greaves & Co., 2945 West Mozart Avenue, Chicago, a 15-ton, 24-ft. span, 2-motor, overhead crane from the Milwaukee Electric Crane & Mfg. Co.

Inland Steel Co., Indiana Harbor, Ind., a 20-ton, motor-driven overhead crane from a Milwaukee builder.

Carnegie Steel Co., Pittsburgh, six 5-ton, triple magnet structural steel handling cranes for the Homestead works from the Morgan Engineering Co.

has awarded a general contract to Fred Kilgus, Inc., 13 South Street, for a one-story addition to cost \$25,000. Hollingsworth & Bragdon, 17 West Forty-fifth Street, New York, are architects.

The Montclair Monumental Works, 409-11 Orange Road, Montclair, N. J., will begin the construction of a new stone-working shop, 40 x 75 ft., to cost about \$18,000. Hoisting and conveying equipment will be installed. John F. Marnell is head.

The Public Service Electric & Gas Co., Public Service Terminal, Newark, N. J., will remodel its power plant at Hoboken, N. J., and install new machinery to develop a capacity of 14,000 kva.

Ovens, power equipment, conveying machinery and other equipment will be installed in the proposed new plant to be erected by the Continental Baking Co., 512 Fifth Avenue, New York, at Newark, to cost \$500,000. C. B. Comstock, 110 West Fortieth Street, New York, is architect.

The National Lock Washer Co., 40 Hermon Street, Newark, has awarded contract to Enstice Brothers, 111 Academy Street, for a one-story addition, 47 x 49 ft. Monks & Johnson, 99 Chauncey Street, Boston, are architects.

The Driver-Harris Co., Middlesex Avenue, Harrison, N. J., manufacturer of electrical resistance wires and other wire products, has acquired the plant and business of the Electrical Alloy Co., Morristown, N. J., for \$500,000. The plant will be continued as a division of the purchasing company. Frank L. Harris is chairman of the board.

Fire, Oct. 24, damaged a portion of the plant of the Rees & Stindt Machine Works, 534-36 West Fifty-eighth Street, New York. An official estimate of loss has not been announced.

The Standard Oil Co. of New York, 26 Broadway, has arranged for an increase in capital from \$235,000,000 to \$375,000,000, a portion of the proceeds to be used for extensions and improvements in refineries and distributing plants, and for the acquisition of additional properties.

John A. Rossi, 565 East Tremont Avenue, New York, architect, has plans for a two-story automobile service, repair and garage building, 50 x 100 ft., on First Avenue, estimated to cost \$60,000.

The Michigan Steel Tube Products Co., Detroit, has recently completed a plant addition which will increase its monthly capacity by 25 per cent.

Philadelphia

PHILADELPHIA, Nov. 9.

MORRIS WHEELER & CO., Thirtieth and Locust Streets, Philadelphia, iron and steel products, have taken title to the former plant of the Vim Motor Truck Co., Fox and Roberts Streets, secured at a sheriff's sale for \$400,000, including 10 acres with buildings. The new owners plan the removal of their business to this location, where production will be increased.

The Philadelphia Engineering Co., 308 Walnut Street, Philadelphia, manufacturer of mechanical specialties, has plans for a one-story factory, 50x200 ft. Clarence E. Wunder, 1520 Locust Street, is architect.

The Yale & Towne Mfg. Co., Stamford, Conn., has taken title to the plant of the Miller Lock Co., 4501-67 Tacony Street, Philadelphia, 200x547 ft., for \$191,000, and will operate a branch plant here.

The Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia, has acquired 17½ acres at Luzerne and G Streets, for \$262,380, and will use a portion of the site for a new automatic power substation, to cost \$200,000 with machinery.

The Kingsbury Machine Works, Inc., 4320 Tackawanna Street, Philadelphia, has awarded a contract to Samuel D. Milner, 1117 Foulkrod Street, for an addition.

The Heintz Mfg. Co., Front Street and Olney Avenue, Philadelphia, manufacturer of steel automobile bodies, has awarded further contracts for plant additions to the Robinson Iron & Steel Co., Manayunk, to be one-story and to cost \$14,000.

The Golding-Keene Co., Trenton, N. J., operating feldspar properties at Keene, N. H., has leased about 20 acres of feldspar lands at Ogden, near Marcus Hook, Pa., and will establish a new mining plant. The company has work under way on a new grinding mill on New York Avenue, Trenton, and will ship the Ogden production to this plant. Charles E. Golding is president.

Stanley G. Flagg & Co., 1421 Chestnut Street, Philadelphia, iron and steel, have awarded a general contract to William Wiand, Pottstown, Pa., for a three-story storage and distributing plant, 80x105 ft., at Stowe, Pa., to cost \$75,000. The Ballinger Co., 105 South Twelfth Street, Philadelphia, is architect.

The Jessup & Moore Paper Co., Commercial Trust Building, Philadelphia, has plans for extension in its Augustine

mills, near Wilmington, Del., with buildings to cost about \$200,000, and additional machinery, \$300,000.

Fire, Oct. 29, destroyed a portion of the pattern shop at the plant of the Penn Steel Casting Co., Chester, Pa., with loss estimated at \$10,000. It is planned to rebuild.

A power plant and machine shop will be constructed by the Lyons Artificial Silk Co., Sellersville, Pa., at its proposed mill at Pennsville, N. J. The entire project will cost about \$1,000,000. J. Harold Felton is president.

New interests have secured control of the New Castle Paper Mills Co., New Castle, Pa., idle for about a year. Plans are under way for enlargements and the installation of additional equipment. It is expected to place the plant in service early in January. The new company will be known as the New Castle Paper Products Co., it is stated, recently formed under Delaware laws with a capital of \$103,000.

The Borough Council, Lansdale, Pa., is completing plans for enlargements in the municipal electric light and power plant, with the installation of a \$2500 kw. generator and accessory equipment.

A cold storage and refrigerating plant will be installed in the new terminal warehouse of the Lehigh & New England Co., Allentown, Pa., on which work has been started. It will be three stories, 150x200 ft., estimated to cost \$1,000,000 with machinery. S. V. P. Quakenbush will be manager of the plant.

The Eureka Vacuum Cleaner Co., Dewey and Hamilton Streets, Detroit, has acquired property at Shamokin, Pa., and is said to be arranging for a new branch plant.

The National Mfg. Co., Forst-Richey Building, Trenton, N. J., has been incorporated to manufacture the "Ideal" tape machine, a device for the merchant to seal packages and parcels, with a gummed tape carrying printed matter advertising the merchant's business. The machine, set on a counter, holds, prints, moistens and cuts the sealing tape, which is used in place of twine.

South Atlantic States

BALTIMORE, Nov. 9.

WORK will begin on the proposed steam-operated electric generating plant of the Consolidated Gas, Electric Light & Power Co., Lexington Building, Baltimore, on waterfront site, estimated to cost \$3,000,000. Three additional units will be constructed later, bringing the total cost to \$10,000,000. Herbert A. Wagner is president.

Grinding and mixing machinery, conveying and other equipment will be installed in the one and three-story plant, 60 x 110 ft., to be constructed by the Blue Diamond Mortar Co., Twenty-fifth Street and Taylor Avenue, Baltimore, to cost about \$60,000. The B. F. Bennett Building Co., 123 South Howard Street, is architect. J. A. Hall is president.

The Virginia Electric & Power Co., Richmond, Va., formerly the Virginia Railway & Power Co., is disposing of a preferred stock issue of \$5,000,000, a portion of the fund to be used for extensions and improvements in power plants and systems, and the acquisition of additional properties in Virginia and North Carolina. The company is operated by Stone & Webster, Inc., 147 Milk Street, Boston. Harry H. Hunt is chairman of the board.

J. C. Steele & Sons, Statesville, N. C., manufacturers of clay-working machinery, are in the market for a power punch and shear, suitable for 2 to 5-in. material.

The Old Dominion Ice Corporation, Norton, Va., is contemplating erection of a new ice-manufacturing plant to cost \$100,000 with machinery. The company is also planning for extensions and improvements in its plant at Pennington Gap, Va.

The Lummus Cotton Gin Co., Columbus, Ga., has awarded a general contract to the H. K. Ferguson Co., Cleveland, for a one-story machine shop, 130 x 220 ft., to cost about \$50,000, equipped for parts manufacture and assembling. It is proposed to increase the plant capacity about 25 per cent. T. E. Golden is president, and F. E. Lummus, general manager.

The Common Council, Martinsville, Va., plans the installation of pumping equipment in connection with proposed extensions and improvements in the municipal waterworks to cost \$45,000. Bonds will soon be arranged.

The Richbourg Motor Co., 52 Broadway, Asheville, N. C., has leased a three-story structure, 128 x 140 ft., to be erected for a service, repair and garage building, estimated to cost \$150,000 with equipment. Albert Wirth, Asheville, is architect.

The Southern Can Co., Wolfe and Washington Streets, Baltimore, has purchased the plant of the Columbia Graphophone Co., Orangeville, Baltimore, constructed in 1921 at a

cost of about \$5,000,000 but never occupied. The purchasing company will remove its present plant to the new location and will install additional machinery. It will occupy about one-half of the available space at present, remodeling the remainder for an industrial terminal, to be operated by the Gibbs Industrial Building Co., now being formed as a subsidiary. John S. and E. Everett Gibbs head both organizations.

The Miller Mfg. Co., Inc., Stockton Street, Richmond, Va., has inquiries out for a generator, 500 kw. capacity, direct-connected to a turbine engine, with accessories.

The Hackley-Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a 12-in. centrifugal pump for sand service; one locomotive type boiler, on skids or rollers; two rock crushers, Champion type; an elevator, 2 to 30-ft. run, with 16-in. buckets; screens for crushed stone, about 40 in. x 16 ft.; and a quantity of cotton mill machinery.

The Adams Brothers-Payne Co., Kemper Street and Park Avenue, Lynchburg, Va., is contemplating rebuilding its woodworking plant and planing mill, including boiler house, recently destroyed by fire with loss of about \$35,000 including equipment.

The Chamber of Commerce, Danville, Va., has closed negotiations with a new company, name temporarily withheld, for the construction and operation of a local plant for the manufacture of spark plugs and ignition equipment, to cost approximately \$175,000 with machinery.

The Table Rock Furniture Co., Morganton, N. C., will soon begin the construction of a new plant, 75 x 600 ft., to cost about \$170,000 with machinery. E. N. Giles is secretary.

Pittsburgh

PITTSBURGH, Nov. 9.

A FAIR demand for machine tools prevails in this district, mostly for single tools, but which reaches a fairly satisfactory total. The most active buyers are steel and steel fabricating companies. Not much railroad buying is reported. The Westinghouse Electric & Mfg. Co. is moving slowly on its quarterly list, which besides a number of minor items, has about 15 which are of much interest to machine tool sellers.

Contract has been let by the Pittsburgh Railways Co., 435 Sixth Avenue, Pittsburgh, to the W. T. Grange Construction Co., Keenan Building, for a two-story car barn and repair shop, 111 x 121 ft. M. R. Scharff is company engineer.

The Penn Public Service Co., Johnstown, Pa., will begin the construction of a new automatic power substation at South Gore Street and French Road, Erie, Pa., to cost approximately \$250,000 with equipment.

The Kelly Axe & Tool Co., Charleston, W. Va., has awarded a general contract to the Dravo Contracting Co., Neville Island, Pittsburgh, for a new unloading dock at Glassport on the Monongahela River, 120 ft. long. It will be equipped with overhead travelling cranes and other material-handling machinery.

The Black & White Taxi Co., Charleston, W. Va., has leased a two-story building, 25 x 100 ft., to be erected on Summers Street, and will equip a portion of the structure for a repair and machine shop.

The Bennett Lumber & Mfg. Co., Sedgwick Street, Millvale, Pa., has asked bids on a general contract for a one and two-story wood-working plant and planing mill, 50 x 120 ft., to cost \$50,000 with equipment. Frank H. Smart, 3418 Delaware Avenue, Pittsburgh, is architect.

The H. J. Heinz Co., 1062 Progress Street, Northside, Pittsburgh, has plans for a new storage and distributing plant to cost \$450,000 with material-handling machinery and other equipment.

The Bessemer Gas Engine Co., Thomas Street, Grove City, Pa., is arranging for the installation of additional equipment, for which orders will be placed at once. J. P. Henry is superintendent, in charge.

Frank D. Saupp, Inc., 5928 Penn Avenue, Pittsburgh, automobile dealer, has filed plans for a new service, repair and garage building to cost \$150,000 with equipment.

The Hammermill Paper Co., Erie, Pa., will proceed with the erection of an addition to its mill, estimated to cost \$65,000, for which a contract recently was let to the Henry Shenk Co., 132 Seventh Street, Pittsburgh.

The United States Engineer, Huntington, W. Va., is asking bids until Nov. 17 for two return fire tube boilers, circular 52; until Nov. 16 for 100 steel castings for washers and 50 phosphor bronze castings for bushings, circular 81.

The Board of Education, Midland, Pa., plans the installation of manual training equipment in its proposed two-story and basement junior and senior high school, to cost \$300,000, for which a general contract has been let to the Cook-Anderson Co., Beaver, Pa. W. C. Eckles, Lawrence Savings & Trust Building, New Castle, Pa., is architect.

A. M. Tadejeske, First National Bank Building, Johnstown, Pa., architect and engineer, has plans for a two-story automobile service, repair and garage building, 130 x 132 ft., to cost \$45,000.

Lazote, Inc., has been organized by E. I. du Pont de Nemours & Co. to manufacture synthetic ammonia. A plant is under construction at Bella, W. Va., which is expected to be ready for operation in February.

H. V. Hazeltine, Charles Forsgren and R. Z. Morrison, Warren, Pa., have plans under way for a two-story brick and steel factory, 250 x 300 ft., for the manufacture of dining room furniture. A power plant will also be erected.

J. F. Gaughn, Poplar Street, Warren, Pa., is in the market for a cylinder re boring machine, small lathe and other equipment for a garage under construction.

The Mantle Engineering Co., Pittsburgh, has been organized to manufacture combustion control devices and recuperators. Production contracts have already been made for welding and sheet metal work.

New England

BOSTON, Nov. 9.

MACHINE tool business holds up fairly well, although it is not as active as a week ago. Buying is confined largely to used equipment, but covers a variety of machines. Individual purchases the past week were in single lots and without special significance. An encouraging feature is the gradual increase in the number of inquiries each week, and although, with one or two exceptions, these are for single tools, some of the largest users who have asked quotations on numerous machines for the evident purpose of inventory or for 1926 budget purposes, have intimated that at least some equipment may be purchased before Jan. 1. In that event it is likely that 1925 will prove a more active year than 1924 with many local houses. The largest open inquiry in the market is for a drill, lathe, milling machine and bench grinder for the Boston Navy Yard.

The Clarke Coal Co., 798 Eastern Avenue, Malden, Mass., will erect a small coal pocket, for which handling equipment is required.

Contract has been awarded for the erection of an 80 x 240 ft. State trade school at Bridgeport, Conn. E. B. Caldwell, Jr., 886 Main Street, Bridgeport, is the architect.

George P. Carver Co., 261 Franklin Street, Boston, is the engineer for a proposed 40 x 66 ft. coal pocket to cost with equipment \$40,000, to be erected on Phillips wharf, Salem, Mass., by the Salem Terminal Corporation. Conveying equipment is required.

The machine shop of Arthur C. Howe, North Hadley, Mass., cutlery, was destroyed by fire last week with a loss of several thousand dollars. It is planned to resume business as soon as manufacturing quarters and machine tools can be procured.

The Peck, Stow & Wilcox Co., Southington, Conn., hardware, is asking bids on a two-story, 55 x 180 ft. addition to provide manufacturing space for the equipment of the D. H. Stoll Co., Buffalo, recently purchased.

The Lyman Gunsight Corporation, Middlefield, Conn., has purchased the tools and machinery of the Ideal Mfg. Co., New Haven, Conn., reloading tools for shotguns and metallic cartridges, and will manufacture goods made by the latter firm, which is going out of business.

The Connecticut Co., West Main Street, Waterbury, Conn., has awarded a general contract to the H. Wales Lines Co., Meriden, Conn., for its proposed one-story car barn and shops to cost \$400,000 with equipment. R. W. Foote, 185 Church Street, New Haven, Conn., is architect.

The Hedason Mfg. Co., 1041 State Street, New Haven, Conn., manufacturer of player piano hardware, etc., has awarded a general contract to the M. J. Gibbud Co., 100 Water Street, for a one-story addition, 40 x 136 ft., to cost \$28,000.

The Fall River Gas Works Co., Madison Avenue, Fall River, has plans for a one-story machine and repair shop

and service garage, 55 x 110 ft., to cost \$45,000. Stone & Webster, Inc., 147 Milk Street, Boston, is engineer.

The American Brass Co., Waterbury, Conn., has awarded a general contract to the Tracy Brothers Co., Waterbury, for a three-story addition, 60 x 135 ft., to cost approximately \$80,000.

The property of the Parsons Machinery Co., 248 Lincoln Street, Marlboro, Mass., has been acquired by Charles F. Connor, manager of the Howe Lumber Co., a local concern. The new owner plans to remodel the structure. No announcement has as yet been made regarding continuance of the machine business.

The Meriden Gas Light Co., Meriden, Conn., will build an addition to its artificial gas plant and install new gas benches and other generating apparatus.

Fire, Oct. 31, destroyed a portion of the wood-working plant of the George Eddy Co., Ltd., Bathurst, Me., with loss estimated at \$40,000 including equipment. Plans for rebuilding are under consideration.

The Connecticut Light & Power Co., Waterbury, Conn., has concluded arrangements for the purchase of the plant and property of the Bristol & Plainville Electric Co. for \$3,000,000. Plans are under way for extensions. The purchasing company will begin the construction of an addition to its steam-operated power plant at Devon, Conn., and also contemplates a hydroelectric power development on the Housatonic River.

Sargent & Co., Inc., Water Street, New Haven, Conn., manufacturer of builders' hardware, has work in progress on a one-story addition, 32 x 131 ft., for sand-blasting and other manufacturing service. Contract recently was let to the National Construction Co., 151 Court Street.

The Portsmouth Auto Body Co., Bartlett Street, Portsmouth, N. H., is said to be contemplating the early rebuilding of the portion of its plant destroyed by fire Nov. 2 with loss of about \$70,000 including equipment.

The Pratt Drop Forge & Tool Co., Shelburne Falls, Mass., operated by the Goodell-Pratt Co., has plans for a one-story addition to its drop forge works on William Street.

Plans are under way for a reorganization of the Connecticut Brass & Mfg. Co., Waterbury, Conn., operating under receivership for several years, and the plant has been temporarily closed. It is said that the new organization will resume production in the near future and purposes to make extensions and betterments. Maurice E. Mayo is receiver.

The Casey Boat Works, Fairhaven, Conn., is said to be planning to rebuild the portion of its yard and shops at the foot of Bridge Street destroyed by fire Oct. 24, with loss of about \$60,000 including equipment. Major J. Casey heads the company.

The Whitlock Coil Pipe Co., South Street, Elmwood, Hartford, Conn., has awarded a general contract to the Standard Erecting Corporation, 110 East Forty-second Street, New York, for a one-story boiler and plate shop, 120 x 160 ft.

Buffalo

BUFFALO, Nov. 9.

OFFICIALS of the Tucker Rubber Corporation, 32 Spencer Street, Buffalo, manufacturer of mechanical rubber goods, etc., have formed the New York Rubber Co. to take over and expand the plant and property of the company of the same name at Beacon, N. Y., recently acquired at a receiver's sale. It will be operated as a subsidiary, manufacturing a kindred line of rubber specialties. Extensions are planned.

The Trico Products Corporation, 624 Ellicott Street, Buffalo, manufacturer of automobile equipment, has filed plans for a new one-story works to cost \$41,000.

The Elgin A. Simonds Co., 17 North Clinton Street, Syracuse, N. Y., has awarded a general contract to the J. D. Taylor Construction Co., 115 South Salina Street, for a two-story wood-working and lumber plant, to cost \$100,000 with machinery. Guy L. Noble, Union Building, is architect.

The Houde Engineering Corporation, 1392 West Avenue, Buffalo, manufacturer of automobile equipment, has taken out a permit to build a new plant at 808 Northland Avenue, to cost \$30,000 with machinery. G. Morton Wolfe, 1377 Main Street, is architect.

G. W. Pfohle, Jr., 61 Peckham Street, Buffalo, and associates are considering plans for a one-story works for the manufacture of automobile bodies, to cost \$32,000 with equipment.

The Chevrolet Motor Co., Buffalo, has awarded contract to the Harding Construction Co., Buffalo, for a one-story addition to its assembling plant, 200x300 ft., to cost \$85,000.

Wright & Nice, General Motors Building, Detroit, are architects.

The Covert Gear & Mfg. Corporation, Lockport, N. Y., manufacturer of gear assemblies, gears, etc., is disposing of a bond issue of \$400,000, a portion of the proceeds to be used for expansion. A. A. Gloetzner is president and general manager.

The Buffalo General Electric Co., Electric Building, Buffalo, has plans for a new power substation at 955 Bailey Avenue, to cost about \$55,000 with switching and other equipment.

Fire, Oct. 5, destroyed a portion of the wood-working plant of the W. G. Palmer, Inc., Oliver Street, North Tonawanda, N. Y., with loss reported at \$35,000 including equipment. It is planned to rebuild.

David Peterson, manager of the Sayre Cold Storage & Creamery Co., Waverly, N. Y., is in the market for transmission, conveying and hoisting machinery for a proposed packing plant.

John C. Lindsay, McClew Road, Newfane, N. Y., is in the market for a small lathe and drill press.

The Elmira Beverage Co., 121 East Second Street, Elmira, N. Y., is in the market for bottle washing machinery, transmission and conveying equipment, for its local works now undergoing repairs.

Chicago

CHICAGO, Nov. 9.

THE trend toward expansion is still in evidence in the machine tool market and inquiries the first week in November indicate increased interest upon the part of buyers. The automotive industry is particularly active and although it has just recently placed a number of good-sized orders, the trade is still figuring on lists which will be closed in the near future. Dealers report that greater interest is being shown in the heavier tools, such as boring machines and large radial drills. Demand is steady and seems to be spreading gradually over a wider territory. Miscellaneous industries which have shown increased interest in equipment include agricultural implement makers, coin-operated slot machine makers, producers of small screw products, electrical meter manufacturers and makers of printing machinery and equipment.

The delivery situation is now a definite factor in the market. One maker of milling machines, it is said, cannot quote less than three months' delivery and a number of recent sales have been decided on the score of the time of shipment.

The Continental Motors Corporation, Muskegon, Mich., has entered the market for \$100,000 worth of tools, including 30 grinding machines. This company placed several automatic screw machines and a number of milling machines during the week. The inquiry for crank shaft grinders from the Nash Motors Co. is said to be still open. The company has \$10,000 worth of grinders to place out of the original inquiry for \$50,000 worth of that equipment. The Nash company is also reported to have purchased 11 turret lathes. The Seaman Body Corporation, Milwaukee, has just completed an addition to its plant and is preparing an extensive list. The William Ganschow Co., Chicago, has purchased a 72-in. gear cutter and the Chicago board of education has placed four 11-in. lathes, a wet tool grinder and a 20-in. drill press, all motor-driven, for the Carl Schurz High School. The board of education is also inquiring for a list of tools, including wood-working machines, for the Tilden High School. The A. O. Smith Corporation, Milwaukee, is still in the market and there are a number of items, including a 2-in. triple head bolt cutter and several milling machines, which are open on the New York Central's recent inquiry. Johns-Manville, Inc., Waukegan, Ill., is asking for bids on drill presses, lathes, grinders, shapers and saws.

The Calumet Gas & Electric Co., a subsidiary of the Midland Utilities Co., 122 South Michigan Boulevard, Chicago, will erect, in the near future, a new power plant at Michigan City, Ind. The first units will be two 30,000 kw. Westinghouse turbo-generators. The cost of this station is estimated at \$6,500,000.

The Ralco Mfg. Co., 123 North Albany Avenue, Chicago, maker of electrical specialties, has bought the factory building at the corner of Lake Street and Albany Avenue, for \$63,000.

The W. T. Rawleigh Co., Freeport, Ill., is having plans prepared for a steam power house to cost in excess of \$100,000.

The Board of Trustees, University of Iowa, Iowa City, Iowa, has plans under way for a new steam power house to cost \$300,000.

Tentative plans are being considered by the Aurora Pump & Mfg. Co., Aurora, Ill., for a one-story addition, to cost \$45,000 with equipment.

The Hewitt Co., South Ninth Avenue, Maywood, Ill., has awarded a general contract to the Truscon Co., 165 East Erie Street, Chicago, for a one-story foundry addition, 42 x 60 ft.

Fire, Oct. 29, destroyed a portion of the plant of the Capitol Iron & Metal Co., 1426 Second Street, North, Minneapolis, Minn., with loss reported at \$50,000 including equipment. Rebuilding plans are under consideration.

The Fort Dodge Iron & Metal Co., has awarded a contract to M. J. Gross, Fort Dodge, for a one-story addition, 35 x 144 ft.

The O'Halloran Motor Service Co., 1330 Grand Avenue, St. Paul, Minn., has awarded a contract to Garrick Brothers, 826 Charles Street, for a one-story service, repair and garage building, 80 x 150 ft. A. F. Gauger, Exchange Bank Building, is architect.

The Central Lumber Terminal Co., affiliated with the Acme Lumber & Shingle Co., 20 West Jackson Boulevard, Chicago, A. J. Barker, president, has plans for a one-story lumber mill at Mannheim Station, near Franklin Park, Ill., to cost \$150,000 with machinery.

The John H. Von Steen Co., Beatrice, Neb., manufacturer of wire and metal fencing, etc., is considering rebuilding the portion of its plant destroyed by fire Oct. 29, with loss of \$35,000 including equipment.

The Hart Tractor Co., Charles City, Iowa, will rebuild the portion of its plant destroyed by fire Oct. 29, with loss estimated at \$18,000.

The Maytag Co., Newton, Iowa, manufacturer of electric washing machines, parts, etc., has preliminary plans for a one-story and basement addition, 190 x 280 ft., to be used in part as a grey iron foundry, estimated to cost \$350,000 with equipment. A call for bids will likely be deferred until early in the spring. Henry Raeder 20 Jackson Boulevard, Chicago, is architect and engineer. T. L. Maytag is president.

The City Council, Muscatine, Iowa, is planning for extensions in the municipal electric light and power house to cost about \$375,000 with equipment. A bond issue will be arranged.

A. Finkl & Sons, 1326 Cortland Street, Chicago, will construct a one-story addition to their forge plant, on lot 60 x 100 ft. A 30-ton crane will also be installed.

Cleveland

CLEVELAND, Nov. 9.

MACHINE tool dealers report a very good volume of business, mostly in single tools. There is still considerable demand from the automotive industry although a decided quieting down is noted in the Detroit territory. The Nash Motors Co., Kenosha, Wis., during the week purchased 12 to 15 turret lathes from a Cleveland manufacturer. The demand for presses is quite active. The Remy Electric Co., Anderson, Ind., which was reported last week to have purchased six machines, placed other press orders making a total of 18 machines bought from one manufacturer.

The Eaton Axle & Spring Co., which recently announced an expansion program requiring a large amount of machinery, became a more active buyer the past week, purchasing several multiple spindle drilling machines and other tools for machining axles. Its requirements will also include 40 single spindle drilling machines which have not yet been placed. The Interstate Foundries, Cleveland, has continued purchases, which started sometime ago, of considerable equipment for machining castings. The Clark Controller Co., Cleveland, purchased a number of machines for a plant to manufacture electric controlling devices. The Marion Steam Shovel Co., Marion, Ohio, purchased two 6-in. bar horizontal drilling, milling and boring machines from an Ohio manufacturer. The White Motor Co., Cleveland, bought a Pratt & Whitney 14-in. vertical surface grinder and Steiner Brothers, Lima, Ohio, a 6-in. vertical shaper. The Streine Tool & Mfg. Co., New Bremen, Ohio, has taken an order for four shears for the Philip-Carey Co., Lockland, Ohio.

The Donley Brothers Co., 13900 Miles Avenue, Cleveland, is having plans prepared for a one-story addition, 60x160 ft. Wilbur Watson & Associates, 4614 Prospect Avenue, Cleveland, are the architects and engineers.

The Stewart Brothers Paint Co., Alliance, Ohio, will take bids soon for a two-story and basement factory, 40x80 ft. Storage tanks, motors and other equipment will be purchased.

The Allen Filter Co., 25 South St. Clair Street, Toledo, Ohio, has placed the general contract for a one-story factory and office building, 70x80 ft.

The Giant Tire & Rubber Co., Findlay, Ohio, contemplates the erection of a one-story factory, 80x200 ft. C. E. Hart is president.

The Wadsworth Salt Co., care of R. L. Freudenberger, 908 Hanna Building, Cleveland, contemplates the erection of a factory at Wadsworth, Ohio. Warren D. Spengler, 1053 Union Trust Building, Cleveland, is the architect and engineer.

The Ferry Cap & Set Screw Co., Cleveland, has placed a contract for a two-story factory building, 45x65 ft. to be used for warehouse purposes.

The H. N. White Co., 5225 Superior Avenue, Cleveland, manufacturer of musical instruments, has placed a contract with the H. K. Ferguson Co., Cleveland, for a three-story addition, 32x60 ft.

The Akron Standard Mold Machine Co., Akron, Ohio, has placed the general contract for a one-story factory, 60x68 ft., to J. B. Costigan. The Portage Iron & Wire Co., Akron, has taken the contract for the steel.

The Safe Cabinet Co., Marietta, Ohio, has placed the general contract with the R. R. Kitchen Co., Wheeling, W. Va., for additions involving an expenditure of approximately \$1,000,000. One will be a four-story factory, 80x510 ft., and the other a three-story office building, 50x192 ft.

The American Automatic Connector Co., 118 Noble Court, Cleveland, contemplates the erection of a plant for the manufacture of car couplers. M. A. Barber is president and C. G. Feil is secretary and treasurer.

The Federal Radiator & Boiler Co., Zanesville, Ohio, contemplates the erection of a one-story, 100x200 ft. foundry addition. Theodore F. Schlade is general manager.

The Simpson Foundry & Engineering Co., Newark, Ohio, contemplates the erection of a factory to replace one recently burned. C. C. McGrudder is president.

The Cleveland Metal Stamping Co., 3100 Payne Avenue, Cleveland, has placed a contract with Hess Klaus Co., for a two-story building, 120x376 ft. H. G. Thompson is general manager. The George S. Rider Co., Century Building, is the engineer.

The India Tire & Rubber Co., Mogadore, Ohio, has awarded contract to the A. Franklin & Sons Co., Akron, for a two-story and basement factory, 80x80 ft.

The National Steam Pump Co., Upper Sandusky, Ohio, has awarded contract for a one-story addition, 40x80 ft.

The Truscon Steel Co., Youngstown, has authorized construction of new buildings at its plant to house the fireproofing department purchased this year from the General Fireproofing Co. Since the purchase, the department has been maintained in the plants of the General Fireproofing Co., and the business has been operated under the name of the General Fireproofing Building Products. It is the intention to concentrate it with the other Truscon departments.

The John H. Fitch Co., Inc., Youngstown, is in the market for transmission and conveying machinery, lathe, drill press and other equipment for a five-story garage and service station.

Detroit

DETROIT, Nov. 9.

CONTRACT has been awarded by the American Metal Products Co., 6431 Epworth Boulevard, Detroit, to the Bennage & McKinstrie Co., Morgan Building, for a two-story addition, 40 x 150 ft., to cost \$35,000.

George H. Chapman, St. Johns, Mich., manufacturer of portable houses, has work in progress on an addition to his plant.

The Fisher Body Corporation, General Motors Building, Detroit, has plans for enlargements in its works at Memphis, Tenn., increasing the floor area to a total of 250,000 sq. ft. Extensions will also be made in the power department to double the present capacity. The entire program will cost about \$2,000,000 with machinery. William A. Fisher is president.

P. R. Pereira, Lincoln Building, Detroit, architect, has plans for a one-story automobile service, repair and garage building, 140 x 330 ft., to cost \$175,000 with equipment.

The Chelsea Screw Co., Chelsea, Mich., manufacturer of screw machine products, has awarded a general contract to the Austin Co., Chicago, for a one-story and basement addition, 45 x 65 ft., to cost \$35,000. M. J. Dunkel is president.

The Bovee Hydraulic Transmission Co., Lansing, Mich., care of the local Chamber of Commerce, has been formed by Ranson Y. Bovee and associates to construct and operate a local plant for the manufacture of automobile hydraulic transmission equipment. The proposition will be financed in part under the direction of the Chamber of Commerce, which will select a site.

Fire, Oct. 28, destroyed a portion of the plant of the Flint Foundry Co., Flint, Mich., with loss estimated at \$50,000 including equipment. The company specializes in the manufacture of grey iron castings.

The Consumers Power Co., Jackson, Mich., will make extensions and improvements in its electric power plant at Ionia, Mich., recently acquired, including the installation of additional equipment.

The Universal Cooler Co., 605 Book Building, Detroit, is said to be contemplating the erection of a new plant on Dix Avenue. Albert H. Meinke is vice-president.

The Blackmer Rotary Pump Co., 1807 Century Avenue, S. W., Grand Rapids, Mich., has plans under way for a new one-story foundry for large capacity.

The Magee Sheet Metal Machinery Co., 3916 Vermont Street, Detroit, has awarded a general contract to the Austin Co., Chicago, for a one-story addition to its plant at Ypsilanti, Mich., 50 x 200 ft., to cost \$45,000. W. R. Magee heads the company.

The Superior Furniture Co., Grand Rapids, Mich., is arranging for the removal of a portion of its plant to Lowell, Mich., where additional facilities will be provided for increased capacity.

The Duffy Equipment, Capitol National Bank Building, Lansing, Mich., has acquired a factory at Williamston, Mich., and will remodel for the manufacture of church furniture, cabinets, etc. Bernard J. Duffy is president.

Cincinnati

CINCINNATI, Nov. 9

MACHINE tool buying has fallen off considerably in the past week and orders, with one or two exceptions, have been confined to single machines. The volume of inquiry, however, lends encouragement to local builders who anticipate good business the latter part of this month. While purchases of machinery by automobile makers are not as heavy as in October, Detroit manufacturers are expected to buy a large amount of equipment before the end of the year. Railroads are placing small orders for tools and several carriers are contemplating purchases. The New York, New Haven & Hartford Railroad Co. took bids the past week on two journal truing lathes, four axle lathes, two axle rolling machines and a 46-in. carwheel borer. It is reported that the Cadillac Motor Car Co. is in the market for a number of lathes as well as other machinery.

Production of machine tools is being maintained at a high point in the majority of local plants. Orders have accumulated to a sufficient extent to insure continuation of operations on the present scale throughout the remainder of the year and, in some cases, well into 1926. Deliveries have gradually lengthened so that it is impossible to obtain certain types of machine tools in less than two to three months.

Sales of lathes have been moderate in volume. The Nash Motors Co. bought seven rapid production lathes from a local builder, while smaller orders have been placed by the Buick Motor Co. and the Reo Motor Car Co. The Big Four Railroad purchased a 36-in. x 18 ft. time-saver lathe from the Niles-Bement-Pond Co. Activities in shapers and radial drills have slackened somewhat. Planer manufacturers report a liberal volume of inquiry. Milling machine operations are proceeding at a satisfactory rate.

The American Seeding Machine Co., Springfield, Ohio, has tentative plans for construction of a one-story brick and steel building of the monitor type to be used for storage of steel used in the forge department.

The Cincinnati Ball Crank Co., North Street, Cincinnati, has awarded a general contract to the Austin Co., Cleveland, for a one-story machine shop, 70 x 90 ft.

The Dayton Engineering Laboratories Co., 329 East First Street, Dayton, Ohio, will erect a one-story factory building on Madison Street.

The H. K. Ferguson Co., Cleveland, has taken a contract for a 60 x 120 ft. addition for the Applegate & Mohs Co., Cincinnati, maker of sheet metal products.

The Breese Brothers Co., 2347 Reading Road, Cincinnati, manufacturer of sheet metal products, has awarded a general contract to the J. R. Stevens Co., Murray Road, for a two-story addition, 75 x 183 ft., to cost \$50,000. Bettel & Rapp, Mercantile Library Building, are architects.

The Board of Trustees, Southern Baptist Hospital, Lexington Road, Louisville, has plans for a power house at the institution to cost \$50,000.

The Crane Enamelware Co., Chattanooga, Tenn., has arranged for an increase in capital from \$3,500,000, to \$5,000,000, a portion of the fund to be used for plant expansion, now under way, and the installation of additional equipment.

The Knoxville Fertilizer Co., Bankers' Trust Building, Knoxville, Tenn., has awarded contract to Worsham Brothers, Empire Building, for two additions, 40 x 172 ft. and 30 x 300 ft., to cost about \$150,000 with equipment. Manley, Young & Manley, Knaffle Building, are architects.

The Mead Pulp & Paper Co., Chillicothe, Ohio, is planning for the installation of additional machinery to increase the present output by 40 tons per day. A portion of a note issue of \$1,250,000, now being sold, will be used for this and other expansion.

The Mayo Equipment Co., Ashland, Ky., recently organized by C. C. Mayo and associates, is said to have concluded arrangements for the purchase of a factory at Dayton, Ohio, for the manufacture of automotive equipment. The company is also said to be planning a branch plant at Huntington, W. Va.

The Champion Coated Paper Co., Hamilton, Ohio, has awarded a general contract without competition to the F. K. Vaughn Building Co., Dayton Street, for a one-story addition, including improvements in the present mill, with the installation of additional machinery, to cost \$200,000.

The Jordan Mfg. Co., Johnson City, Tenn., manufacturer of bobbins and other textile mill equipment, is making enlargements in its factory, to include the installation of additional machinery. R. L. Jordan is president.

The Lambert Metal Door Co., Columbus, Ohio, is in the market for an angle-bending machine, preferably used.

St. Louis

ST. LOUIS, Nov. 9

PLANS are being arranged by the All-Locking Zinc Shingle Mfg. Co., Owensville, Mo., recently organized, for a one-story factory, 50 x 150 ft., to cost \$30,000 with equipment. Joseph T. Tate is secretary.

The Board of Public Service, City Hall, St. Louis, will soon take bids for a three-story power service building, with machine and repair shops and other mechanical departments, to cost \$800,000 with equipment. A site has been selected on Clark Avenue. Study & Farrar, Arcade Building, are architects.

Fire, Oct. 30, destroyed a portion of the compressor plant of the Oklahoma Natural Gas Co., Haskell, Okla., with loss reported at \$200,000 including equipment.

The Moniteau Coal Co., Higbee, Mo., is developing a local tract of coal property and will install equipment for a daily capacity of 200 tons. Power apparatus will be purchased, including boilers, pumping machinery and accessories. A. E. Humphrey is secretary and treasurer.

The R. W. Yates Laundry Machine Co., 321 East Eleventh Street, Kansas City, Mo., has awarded a general contract to C. G. Martin, 2800 East Thirty-third Street, for a one-story and basement plant, 143 x 150 ft., at North Kansas City, to cost \$32,000.

The Acme Foundry & Machine Co., Coffeyville, Kan., is considering a one-story foundry addition at Fifteenth and Spruce Streets.

The Marland Refining Co., Ponca City, Okla., will soon proceed with extensions in its local oil refinery, to develop an output of 25,000 bbl. per day, or double the present capacity. New cracking machinery for gasoline production and other machinery will be installed. The entire project will cost more than \$2,500,000.

The J. B. Klein Iron & Foundry Co., 1006 West Second Street, Oklahoma City, Okla., has plans for a one-story addition, 75 x 125 ft.

The Oklahoma Gas & Electric Co., Oklahoma City, Okla., plans extensions and improvements in its electric power house and ice-manufacturing plant at Tishomingo, Okla., and the installation of additional machinery.

The Ora Rubber Products Co., Kansas City, Mo., Charles Ora, president, manufacturer of disk wheels, paving blocks

and kindred rubber products, is reported to be contemplating the erection of a new plant at Harrisonville, Mo.

The City Council, Frederick, Okla., is considering the installation of pumping machinery in connection with proposed extensions in the municipal waterworks to cost about \$50,000. The Benham Engineering Co., Gumbel Building, Kansas City, Mo., is engineer.

The Kansas City Steel Corporation, 1016 Commerce Building, Kansas City, Mo., J. W. Dana, president, has plans under way for its proposed works in the Blue Valley industrial district, and will proceed with initial buildings at an early date. Daniel C. Hayne is chief engineer.

The Wood & Lane Co., St. Louis, is in the market for a 300-kw. motor-generator set, 2300 volts, three-phase, 60-cycle, with switchboard and accessories.

The City Council, Toronto, Kan., is considering the installation of pumping machinery in connection with a proposed municipal waterworks and sewage system to cost \$70,000. F. E. Devlin, Bitting Building, Wichita, Kan., is consulting engineer.

The McNeal Machinery Co., Third and Joplin Streets, Joplin, Mo., has plans for a one-story storage and distributing plant, with repair department, 50 x 125 ft.

Gulf States

BIRMINGHAM, Nov. 9.

ARRANGEMENTS have been concluded by the Texas Pacific Coal & Oil Co., Fort Worth, Tex., for the purchase of the local refinery of the Montrose Oil & Refining Co., inactive for some time, for \$200,000. Plans are in progress for extensions and the installation of additional machinery to cost approximately \$350,000. E. R. Lederer, vice-president, will be in charge of the work.

The Mississippi Power Co., Gulfport, Miss., is planning extensions and betterments in its power house at Columbia, Miss., and the installation of additional machinery. H. L. Pritchard is manager.

The Agricola Furnace Co., Gadsden, Ala., will proceed with the construction of a one-story foundry and warehouse, for which contract recently was let to the Ingalls Iron Works, Birmingham.

The Rathborne, Hair & Ridgeway Co., 2248 Laflin Street, Chicago, manufacturer of wooden boxes and containers, is reported to be considering the erection of a mill at Jackson, Miss., to cost \$100,000 with machinery.

The Texas Ice & Cold Storage Co., 4008 Commerce Street, Dallas, Tex., will erect a one-story ice-manufacturing plant, 100 x 145 ft., to cost \$45,000. V. E. Shanklin, 3310 Commerce Street, is architect.

The Gulf Public Service Co., Atlanta, Tex., is disposing of a bond issue of \$1,500,000, a portion of the proceeds to be used for extensions and improvements in power plants and system. J. C. Hix is president.

The Haring Cotton Machine Co., P. O. Box 928, Dallas, Tex., is desirous of locating a plant equipped to contract for the manufacture of a cotton-picking machine and parts.

The Board of Education, Fort Worth, Tex., plans the installation of manual training equipment in a proposed group of five new junior high schools to cost about \$1,250,000, for which plans will soon be drawn. M. H. Moore is superintendent of schools.

The International Harvester Co., 608 South Michigan Avenue, Chicago, has plans for a three-story factory branch and service works, 70x105 ft., at Amarillo, Tex., to cost about \$250,000 with equipment.

The Martin-Parry Corporation, York, Pa., manufacturer of commercial automobile bodies, is reported to be considering a new branch plant in the vicinity of Jackson, Miss., to cost \$200,000, including machinery.

The Magnolia Compress Co., Mobile, Ala., is said to be arranging to rebuild the section of its cotton compressing plant destroyed by fire Oct. 28, with loss in excess of \$65,000 with equipment.

The Gulf Refining Co., Port Arthur, Tex., has preliminary plans for enlargements in its local refinery and the installation of additional pressure stills and other equipment. It is proposed to construct an asphalt refining unit. Headquarters are in the Frick Annex, Pittsburgh.

The Common Council, White Castle, La., has tentative plans under consideration for a municipal electric light and power house. Bonds will soon be voted.

A. A. Miller, Collinsville, Ala., and associates have preliminary plans for a one-story ice-manufacturing and refrigerating plant on local site.

Ernest L. Hill, president Ernest L. Hill Realty Co., and C. Lyman Spencer, president Southern Development Co.,

both of Jacksonville, Fla., are at the head of a project to construct and operate a group of hydroelectric power plants on the St. Mary's and Suwannee Rivers, for which application has been made. It is proposed to build four initial stations with gross output of 200,000 hp., reported to cost close to \$8,500,000.

The Calcasieu Sulphate Paper Co., Inc., Elizabeth, La., recently formed to take over the local paper mill of the Calcasieu Mfg. Co., will proceed with enlargements and the installation of additional machinery to cost \$300,000. R. M. Hallowell is president. J. E. Ryberg is construction engineer in charge.

The Moe-Bridges Co., 236 Broadway, Milwaukee, manufacturer of electric lamps, lighting fixtures, etc., has awarded a general contract to J. B. Southard, Yowell-Drew Building, Orlando, Fla., for a three-story factory branch and distributing plant at Orlando, to cost more than \$50,000. E. C. Johnson is local representative.

The Todd Engineering, Drydock & Ship Repair Co., New Orleans, has acquired property near the Algiers naval station and is completing plans for a new 10,000-ton drydock and ship repair plant, to cost \$750,000. The initial installation, to cost about \$200,000, will be placed under way at an early date.

James McDonough, Prichard, Ala., and associates, are arranging for the erection of a new ice-manufacturing plant to cost \$75,000 with equipment.

H. V. Bastin, Hollywood, Fla., contemplates the establishment of a local plant for the manufacture of cement blocks, tiles, etc., and will make equipment purchases soon, including presses, power shovel, crusher, screens, conveying apparatus, etc.

The City Council, Lockhart, Tex., plans the installation of pumping machinery in connection with a proposed municipal waterworks, estimated to cost \$60,000. J. B. Hawley, Cotton Exchange Building, Fort Worth, Tex., is engineer.

Indiana

INDIANAPOLIS, Nov. 9.

BIDS will soon be asked by the Parts Corporation, 733-35 Virginia Avenue, Indianapolis, manufacturer of automobile parts, for a one-story addition to cost \$25,000. Ferimor S. Cannon, 21 Virginia Avenue, is architect.

The Standard Oil Co. of Indiana, Lord Street, Indianapolis, will begin work on a new two-story storage and distributing plant, 55 x 170 ft., at Keystone Avenue and the Big Four Railroad, with boiler plant and other structures, to cost \$200,000 with machinery. J. C. Marshall is district manager.

Fire, Oct. 27, destroyed the tippie at the plant of the Maumee Collieries Co., Cass, Ind., at the Oak Grove mine, with loss of \$75,000 including machinery.

The William McMillan & Son Co., Bedford, Ind., has plans for a new stone mill, for cutting, grinding, polishing and kindred service, to cost \$300,000 with machinery. It will be one story, 135 x 600 ft. Four traveling cranes and other handling equipment will be installed.

The Interstate Public Service Co., Indianapolis, will issue bonds for \$325,000, a portion of the fund to be used for extensions and improvements.

The Kuhner Packing Co., Thirteenth and Whitely Streets, Muncie, Ind., is considering the installation of a cold storage and refrigerating plant in its proposed two-story packing house addition, 90 x 100 ft., to cost \$200,000 with equipment. Henry Kuhner is president.

The Gary Screw & Bolt Co., Gary, Ind., has been formed under Delaware laws with capital of \$4,000,000 to take over and expand the local plant and business operated under the same name.

The Terre Haute Paper Co., Nineteenth Street, Terre Haute, Ind., has awarded a general contract to the North-Raffin Construction Co., Indiana Theater Building, for a three-story addition, 45 x 100 ft., to cost \$65,000. W. C. Clark is general manager.

The Consolidated Stone Co., Bedford, Ind., has acquired property in the Clear Creek section, Bloomington, Ind., and plans the construction of a new limestone quarry and mill to cost \$75,000 with machinery. Traveling cranes and other handling and conveying machinery will be installed. A. E. Dickinson is president.

D. B. Straley, Crown Point, Ind., is in the market for a steel tank on 100-ft. steel tower, with capacity from 100,000 to 300,000 gal.

The Remy Electric Co., Anderson, Ind., manufacturer of automobile starting and lighting equipment, will begin work on a one-story addition, 200 x 500 ft., to cost \$500,000 with machinery.

Pacific Coast

SAN FRANCISCO, Nov. 4.

PLANs are being completed for a new one-story plant for the Baash-Ross Tool Co., Los Angeles, manufacturer of oil well tools and equipment, to be 98 x 200 ft., estimated to cost \$100,000 with machinery. The installation will include a 60-ton traveling crane. A power house will be built. The Moran Co., Kerckhoff Building, is architect.

The National Ice & Cold Storage Co., Postal Telegraph Building, San Francisco, will erect a new ice-manufacturing plant at Yuba City, Cal., to cost about \$35,000 with equipment. J. B. Howell is consulting engineer.

Dean & Dean, California State Life Building, Sacramento, Cal., architects, have plans for a two-story automobile service, repair and garage building, to cost \$70,000 with equipment.

The Ballard Drop Forge Co., 1145 West Forty-sixth Street, Seattle, has plans for a one-story machine shop to replace this department recently destroyed by fire. V. A. Marshall is president.

The Chelan Electric Co., Chelan, Wash., will proceed with the construction of its proposed hydroelectric generating plant on Lake Chelan. The complete development will total 100,000 hp., and will cost approximately \$5,000,000 with transmission system. The plant will be operated by the Washington Water Power Co., Spokane, Wash., and will be used primarily for service for the Great Northern Railroad Co., which will electrify its lines in this district.

The Pacific Lighting Corporation, 519 California Street, San Francisco, operating the Los Angeles Gas & Electric Corporation, Los Angeles, and other utilities, is arranging for an increase in capital from \$20,000,000 to \$100,000,000, a portion of the proceeds to be used for extensions and improvements in plants and systems, and the acquisition of additional properties.

The Goodyear Tire & Rubber Co., Los Angeles, has awarded a general contract to the Lynch-Cannon Engineering Co., Chapman Building, for a four-story addition, 100 x 220 ft., to cost \$205,000.

The Olympic Portland Cement Co., Marietta Road, Beltingham, Wash., has plans for extensions and improvements in its mill, to include the installation of an additional kiln and accessory machinery to cost about \$350,000. A. F. Krabbe is superintendent.

The Nicolai-Neppach Co., First and Davis Streets, Portland, manufacturer of sash, doors, etc., is having plans prepared for a two-story addition to cost \$40,000. Houghtaling & Dougan, 326 Stark Street, are architects.

The Southern California Edison Co., Los Angeles, will soon begin work on a new steam-operated electric generating plant at Long Beach, with switching station, to cost \$800,000. Stone & Webster, Inc., Byrne Building, is engineer and contractor.

The East Bay Aviation Co., Richmond, Cal., is arranging for the early purchase of property at Pittsburg, Cal., for a proposed airplane manufacturing plant. An aviation field, training school, and parts and repair plant will also be established. James and Edward Angel head the company.

The City Council, Pocatello, Idaho, plans the installation of pumping equipment in connection with extensions in the municipal waterworks to cost \$500,000. The Burns-McDonnell-Smith Engineering Co., Rives Strong Building, Los Angeles, engineer.

The Hawley Pulp & Paper Co., St. Helens, Ore., is contemplating the construction of a power plant at its paper mill on the Columbia River, about one mile from St. Helens.

The Mineral Mining Co., Inc., Placerville, Idaho, A. C. Gallupe, treasurer, is in the market for blacksmithing and machine shop equipment for a new shop under construction at its local properties.

Canada

TORONTO, Nov. 9

MACHINE tool business continues in good volume in practically all lines, but is confined mostly to single lots. Sales for October exceeded those of any previous month this year, and selling interests expect a good demand throughout the remainder of the year. Large sums are being spent on equipment for pulp and paper mills, lumber mills and power development projects, but in other industries demand is chiefly for replacement purposes.

The Canadian General Rubber Corporation has taken over the building formerly occupied by the Marathon Tire

& Rubber Co. at St. Catharines, Ont., and is putting the plant in shape for manufacturing operations.

Negotiations have been concluded for the consolidation of the Corbet Foundry & Machine Co., Owen Sound, Ont., and the G. E. Stevenson Co., Indianapolis, Ind. The new firm will be known as the Corbet Machine & Gear Co., with head office at Owen Sound, and authorized capital of \$340,000. Officials of the company are: Richard Corbet, president; G. E. Stevenson, vice-president and Fred J. Corbet, secretary-treasurer. The Stevenson multiple shaper and gear cutter will be manufactured at Owen Sound.

The Mueller Mfg. Co., Sarnia, Ont., will make extensions in its plant to manufacture copper water service pipe. The new pipe will be used for domestic service and can be produced at a lower cost than lead pipe.

Tressidder Brothers, 15 Wellington Street North, Hamilton, Ont., manufacturers of paper boxes, etc., will build a new factory to cost \$20,000. Equipment will be purchased.

The MacLeod Pulp & Paper Co., Liverpool, N. S., contemplates building a pulp and paper mill to cost \$500,000.

The Rose Excelsior Co., Pickering, Ont., is completing arrangements for the erection of a factory at Oshawa, Ont.

The city of Simcoe, Ont., will spend \$10,000 on extensions to a power plant. Walter C. McCall is clerk.

The Coleman Lamp Co., Queen Street and Davies Avenue, Toronto, will erect an addition to cost \$40,000. Plans are with Mr. Hunter at the factory. R. G. Kirby, 539 Yonge Street, is general contractor.

Fraser Brace, Ltd., Eighty-third Street West, Three Rivers, Que., have the general contract for a paper mill to be erected at Chelsea Falls, Que., for the International Paper Co., Three Rivers, to cost approximately \$12,000,000; also for a power development plant to cost \$5,000,000.

The Canada Sugar Refining Co., Ltd., has awarded contract for the construction of a power plant on St. Patrick Street, Montreal. Equipment is still to be purchased.

H. Anvik, care Rlordon Pulp Corporation, Temiskaming, Que., is receiving bids for a 600-hp. boiler stoker.

The B. C. Mills Timber & Trading Co., Ltd., Vancouver, B. C., will erect a new sawmill at Moodyville, B. C., to cost \$1,000,000.

Foreign

The Municipal Council, Sydney, Australia, is asking bids until Feb. 1, 1926, for 6 steam turbine units with accessories, including transformers, switchgear, etc., for a proposed municipal power plant with rated capacity of 150,000 kw. The entire project will cost more than \$4,500,000. Specifications at the office of the Electrical Equipment Division, Bureau of Foreign and Domestic Commerce, Washington, reference E. E. 1003.

Officials of the Pan-American Petroleum & Transport Co., 120 Broadway, New York, have organized the Lago Oil & Transport Co., under Delaware laws with capital of 4,000,000 shares of stock, to take over the plant and properties of the Lago Petroleum Co., in the Lake Maracaibo district, Venezuela. Plans are under consideration for expansion in the properties and facilities, with the installation of additional equipment. F. H. Wickett, chairman and president of the Pan-American company, will be president of the new organization.

A new company to be known as the American-European Utilities Corporation, recently chartered under Maine laws with capital of 1,000,000 shares of stock, no par value, is developing plans for a power development in Poland. Organization is being perfected with a capital of \$26,000,000, with the following officials: F. R. Bertron, president of Bertron, Griscom & Co., 40 Wall Street, New York, chairman of the board; E. L. Phillips, head of the Long Island Lighting Co., 50 Church Street, and of E. L. Phillips & Co., engineers, same address, will be president; Frederick Cauldwell, Bertron, Griscom & Co., secretary and treasurer. Power properties will be acquired and developed near Silesia, including the construction of a hydroelectric generating plant on the River Dunajec, near Rozonow, with capacity of 90,000 hp. The project will be placed in progress at an early date.

Notes of Industry

Hendricks & Class, 30 Church Street, New York, who have been representing manufacturers since 1894, have been appointed district sales agents for the Foster Bolt & Nut Mfg. Co., Cleveland, maker of carriage, machine, elevator and special bolts, as well as semi-finished nuts and cap screws.

The Norma-Hoffman Bearings Corporation, Stamford, Conn., will have a number of operating models at the New York Power Show, with D. E. Batesole and F. W. Mesinger, engineers in charge.

The American Standard Tool Works has just moved into its new plant at Pontiac, Mich. The offices and plant were formerly located in Detroit. The new plant is 40 x 200 ft. in plan and the installation of new equipment has just been completed and the plant is now under full production. This company manufactures cutting tools. The officers of the company are John G. Berry, president; Geo. W. Wiard, secretary and treasurer, and C. G. Parker, vice-president.

The general sales office of the General Motor Truck Co. has been moved from Pontiac to the Holbrook Street plant at Detroit.

The Mott Sand Blast Co., which formerly had its office at 24 South Clinton Street, and operated three separate manufacturing plants in Chicago, has recently moved its office and all equipment into its new plant at 4611-4621 Flounoy Street, Chicago. The new location provides 10,000 sq. ft. of floor space arranged and equipped specifically for the manufacture of sand blast equipment.

The Clark Controller Co., Cleveland, recently organized, has acquired a plant at 1146 East 152nd Street, recently occupied by the Blomquist-Eck Machine Co. and will engage in the manufacture of manually operated and automatic electric control apparatus and electric braking equipment. The officers are P. C. Clark, president; J. A. Ellis, vice-president and general manager, C. R. Wendt, secretary and treasurer; H. B. Claffin, works manager; L. A. Watson, chief engineer; C. H. Rippl, Jr., development engineer, and W. H. Williams, sales manager. These also constitute the board of directors.

The Wolverine Porcelain Co., Detroit, is planning further additions to the present plant. Two furnaces, 60 x 180 in., and additional sand blast equipment will go into the new building being erected. Approximately \$100,000 will be spent at this time. The plant is operated under the management of the Porcelain Enamel & Mfg. Co., Baltimore.

Industrial Finance

The Milwaukee Electric Crane & Mfg. Co., Inc., which was a New York corporation doing business at Milwaukee, Wis., manufacturing overhead electric traveling cranes, monorail hoists and lumber handling cranes, has been re-organized under the laws of the State of Wisconsin as the Milwaukee Electric Crane & Mfg. Corporation, with an increase of capital stock from \$300,000 to \$400,000 preferred stock and from 7000 shares to 8000 shares of common no-par value stock. The Wisconsin corporation has acquired all of the assets and business of its predecessor, which represents about \$1,000,000 in real and personal property. The officers are as follows: M. A. Beck, president; Henry S. Wright, vice-president; A. J. Pitman, vice-president; M. P. O'Brien, secretary-treasurer. These, with the addition of Henry M. Thompson, compose the board of directors.

Colorado Fuel & Iron Co., Denver, for quarter ended Sept. 30, reported deficit of \$186,334 after interest, taxes, depreciation, etc. This compares with surplus of \$684,157, equal to \$1.88 a share on \$34,235,500 common stock after allowing for dividend requirements on 8 per cent preferred in preceding quarter, and deficit of \$239,768 in third quarter of 1924. Surplus for first nine months of 1925 totaled \$1,067,575, equal to \$2.76 a share on common, after preferred dividend requirements, against surplus of \$467,487, or \$1.01 a share in same period of previous year.

American Steel Foundries, Inc., Chicago, for nine months ended Sept. 30, shows net profit of \$3,623,568 after charges, depreciation and Federal taxes, equivalent after 7 per cent preferred dividend requirements to \$3.49 a share earned on 902,745 shares of no par common stock. This compares with \$3,588,706, or \$4.31 a share on \$24,073,200 common stock (par \$33½) outstanding in same period of 1924. Net profit for quarter ended Sept. 30 was \$835,221, equal to 75 cents a share on common, comparing with \$1,399,711 or \$1.39 a share in preceding quarter and \$1,240,042 or \$1.50 a share in third quarter of 1924.

The Allis-Chalmers Mfg. Co., Milwaukee, for quarter ended Sept. 30, reports net profits of \$826,107 after Federal taxes, equivalent after preferred dividend requirements to \$2.09 a share on \$25,770,750 outstanding common. This compares with \$830,022 or \$2.10 a share for the preceding quarter and \$824,561, or \$2.07 a share in the third quarter of 1924. Net profits for nine months total \$2,503,182 after Federal taxes, equal to \$6.35 a share earned on common, comparing with \$2,412,165, or \$5.99 a share in the same period of 1924. Unfilled orders on hand Sept. 30 amounted to \$10,143,743, compared with \$10,376,527 a year previous.

Current Metal Prices

On Small Lots, Delivered from Stocks, New York

THESE prices are given for the convenience of small-lot buyers whose requirements do not run into mill-size orders.

Only base prices can be listed in some cases, due to limits of space; other items of a given group are deducible from the base price.

The prices which are quoted below are those at which small lots may be bought, whether from jobbers' or other stocks.

Complete market reports and prices on large shipments from mills will be found elsewhere under "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates		Per Lb.
Bars:		
Refined iron bars, base price.....	3.24c.	
Swedish charcoal iron bars, base.....	7.00c. to 7.25c.	
Soft steel bars, base price.....	3.24c.	
Hoops, base price.....	4.49c.	
Bands, base price.....	3.99c.	
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base.....	3.34c.	
Channels, angles and tees under 3 in. x ¼ in. base.....	3.24c.	
Steel plates, ¼ in. and heavier.....	3.34c.	

Merchant Steel		Per Lb.
Tire, 1½ x ½ in. and larger.....	3.30c.	
(Smooth finish, 1 to 2½ x ¼ in. and larger)...	3.65c.	
Toe-calk, ½ x ¾ in. and larger.....	4.20c.	
Cold-rolled strip, soft and quarter hard.....	6.25c. to 6.75c.	
Open-hearth spring steel.....	4.50c. to 7.00c.	
Shafting and Screw Stock:		
Rounds and hex.....	4.00c.	
Squares and flats.....	4.50c.	
Standard tool steel, base price.....	15.00c.	
Extra tool steel.....	18.00c.	
Special tool steel.....	23.00c.	
High-speed steel, 18 per cent tungsten.....	70c.	

Sheets		Per Lb.
Blue Annealed		
No. 10.....	3.89c.	
No. 12.....	3.94c.	
No. 14.....	3.99c.	
No. 16.....	4.09c.	

Box Annealed—Black		Per Lb.
Soft Steel		
C. R. One Pass	Pipe Sheet	
Nos. 18 to 20.....	3.85c. to 3.95c.	
Nos. 22 and 24.....	4.10c. to 4.20c.	4.60c.
No. 26.....	4.15c. to 4.25c.	4.65c.
No. 28*.....	4.25c. to 4.35c.	4.75c.
No. 30.....	4.45c. to 4.55c.	

Galvanized		Per Lb.
No. 14.....	4.35c. to 4.45c.	
No. 16.....	4.50c. to 4.60c.	
Nos. 18 and 20.....	4.65c. to 4.75c.	
Nos. 22 and 24.....	4.80c. to 4.90c.	
No. 26.....	4.85c. to 5.05c.	
No. 28*.....	5.25c. to 5.35c.	
No. 30.....	5.75c. to 5.85c.	

No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe		Per Lb.
Standard Steel		
Black Galv.		
½ in. Butt....	46 29	4.10c. to 4.25c.
¾ in. Butt....	51 37	4.35c. to 4.50c.
1-3 in. Butt....	53 39	5.00c. to 5.15c.
2½-6 in. Lap..	48 35	5.00c. to 5.15c.
7 & 8 in. Lap..	44 17	5.00c. to 5.15c.
11 & 12 in. Lap.	37 12	6.00c. to 6.15c.
Wrought Iron		
Black Galv.		
½ in. Butt....	4 19	4.10c. to 4.25c.
¾ in. Butt....	11 9	4.35c. to 4.50c.
1-1½ in. Butt	14 6	5.00c. to 5.15c.
2-in. Lap....	5 14	5.00c. to 5.15c.
3-6 in. Lap...	11 6	6.00c. to 6.15c.
7-12 in. Lap...	3 16	

Bolts and Screws		Per Lb.
Machine bolts, cut thread, 40 and 10 per cent off list		
Carriage bolts, cut thread, 30 and 10 per cent off list		
Coach screws, 40 and 10 per cent off list		
Wood screws, flat head iron,		
80, 20, 10 and 5 per cent off list		

Steel Wire		Per Lb.
BASE PRICE† ON NO. 9 GAGE AND COARSER		
Bright, basic.....	4.10c. to 4.25c.	
Annealed, soft.....	4.35c. to 4.50c.	
Galvanized, annealed.....	5.00c. to 5.15c.	
Coppered, basic.....	5.00c. to 5.15c.	
Tinned, soft Bessemer.....	6.00c. to 6.15c.	

†Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire		BASE PRICE
High brass sheet.....	20 c. to 21 c.	
High brass wire.....	20¼c. to 21¼c.	
Brass rods.....	17¾c. to 18¾c.	
Brass tube, brazed.....	27¾c. to 28¾c.	
Brass tube, seamless.....	24¼c. to 25¼c.	
Copper tube, seamless.....	25¼c. to 26¼c.	

Copper Sheets		Per Lb.
Sheet copper, hot rolled, 22¼c. to 23¼c. per lb. base.		
Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.		

Tin Plates		Per Lb.
Bright Tin	Grade "AAA"	Grade "A"
Charcoal	14x20	14x20
IC..	\$11.25	\$8.85
IX..	12.85	10.85
IXX..	14.40	12.55
IXXX..	15.75	13.85
IXXXX..	17.00	15.05
Coke—14x20	Prime	Seconds
80 lb..	\$6.15	\$5.90
90 lb..	6.30	6.05
100 lb..	6.45	6.20
IC..	6.65	6.40
IX..	7.85	7.60
IXX..	9.00	8.75
IXXX..	10.35	10.10
IXXXX..	11.35	11.10

Terne Plates		Per Lb.
8 lb. coating, 14 x 20		
100 lb.	\$7.00 to \$8.00	
IC.....	7.25 to 8.25	
IX.....	8.25 to 8.75	
Fire-door stock.....	9.00 to 10.00	

Tin		Per Lb.
Straits, pig.....	66½c.	
Bar.....	69½c. to 71¼c.	

Copper		Per Lb.
Lake ingot.....	16¼c.	
Electrolytic.....	16½c.	
Casting.....	16 c.	

Spelter and Sheet Zinc		Per Lb.
Western spelter.....	10¼c.	
Sheet zinc, No. 9 base, casks.....	13c.; open, 13½c.	

Lead and Solder*		Per Lb.
American pig lead.....	10¼c. to 12¼c.	
Bar lead.....	12¼c. to 13¼c.	
Solder, ½ and ½ guaranteed.....	40½c.	
No. 1 solder.....	37½c.	
Refined solder.....	31c.	

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal		Per Lb.
Best grade, per lb.	75c. to 90c.	
Commercial grade, per lb.....	35c. to 50c.	
Grade D, per lb.....	25c. to 35c.	

Antimony		Per Lb.
Asiatic.....	21½c. to 22½c.	

Aluminum		Per Lb.
No. 1 aluminum (guaranteed over 99 per cent pure), ingots for remelting, per lb....	30½c. to 31½c.	

Old Metals
Values are firm and inquiry is good. Dealers' buying prices are as follows:

		Cents Per Lb.
Copper, heavy crucible.....		12.25
Copper, heavy wire.....		12.00
Copper, light bottoms.....		9.75
Brass, heavy.....		7.25
Brass, light.....		6.25
Heavy machine composition.....		9.00
No. 1 yellow brass turnings.....		8.75
No. 1 red brass or composition turnings.....		8.25
Lead, heavy.....		8.25
Lead, tea.....		6.25
Zinc.....		5.50
Cast aluminum.....		19.50
Sheet aluminum.....		19.50

